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Washington Highlights

Washington observers understand that the Government of India is negotiating with an American firm for technical aid and advice in building a plant to turn out synthetic oil from low-grade brown coal. India hopes a synthetic oil program will ease the country's petroleum shortage. Samples of India's brown coal have been sent to synthetic oil experts in United States, France and Czechoslovakia for analysis. If research in the future indicates synthetic production is practical, India probably will install a factory to process 1,000,000 tons of synthetic petroleum annually.

The Government-owned wartime shell forging plant near Fontana in California has been purchased by the Taylor Forge and Pipe Co. from the War Assets Administration for $850,000. Consisting of 47 buildings and operating equipment, the plant will be used by the purchaser for production of pipe, fittings and forgings, providing employment for 500 persons. The plant cost approximately $5,600,000 and was operated during the war by Kaiser Industries. The sale is subject to national security provisions required by the U. S. Navy.

President Truman's bullet-proof railroad car is being furbished for coming campaign tours. Among other improvements is the conversion of the stove in the galley from coal to oil.

James R. Lewis, Deming, N. M., a member of the Federal Petroleum Board since 1946, has been named chairman of this oil group by Interior Secretary Krug. Lewis succeeds Ray O. Armstrong, resigned.

National Petroleum Council's committee on petroleum production has reported that the trend upward of domestic crude oil output since 1934 has averaged close to six per cent annually. Current production is estimated at more than 1,650,000 barrels a day in excess of the 1941 daily average. This marks an increase of 43 per cent in seven years.

Based on a study conducted by the American Petroleum Institute, the committee on petroleum refining capacity, estimated refining capacity in the United States on last June 30 was 5,845,000 barrels, a rise of 30,000 barrels above the figure for last December 31. By the end of 1948, the committee foresaw refining capacity as up 74,000 barrels above the June 30 figure.

California is not likely to be effected by the permanent petroleum industry allocation program approved recently by the Interior Department. All consumptive demand for oil products this year on the Pacific Coast can be satisfied adequately, unless some great or unusual emergency should arise unexpectedly. Oil leaders concur in this belief. An optimistic view also is taken of the oil supply situation in the East and Midwest states. Consensus of views is that the temporary and spotty shortages prevailing last winter will not again occur this year.

At any rate, under the allocation program, the industry is placed in a position to distribute available supplies of gasoline and other products in a manner designed to ward off any localized scarcities of petroleum.

Michigan Gas Storage Co. has been authorized by the Interior Department to store as much as 20,000,000,000 cubic ft. of natural gas a year on Federal lands.

Petroleum products, oil transportation and oil equipment will account for $1,000,000,000 or 20 per cent out of the $5,000,000,000 program which the Economic Cooperation Administration will consider in its first year of operation. This was disclosed by Walter S. Hallanan, chairman of the National Petroleum Council.

Hallahan said "there is a great deal of interest in the activities of the agency of Government which has to do with the procurement operations in connection with purchasing of supplies and equipment relating to the so-called Marshall Plan."

The Council chairman also stated "the petroleum Director of ECA, Walter Levy, has called upon the oil industry to aid in obtaining for that agency, competent personnel to assist in the administration of the huge oil program."

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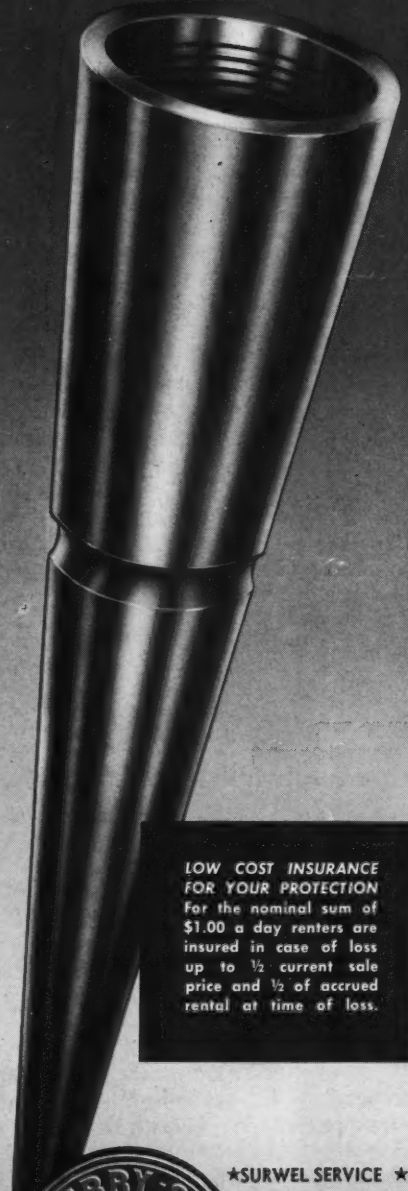

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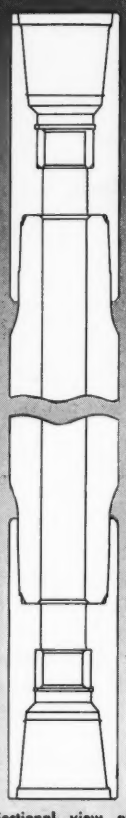

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Hydrogen and Synthesis Gas Production

R. M. Reed and Arne Eriksen,

The Girdler Corporation

August Meeting

The hydrocarbon-steam process for the production of hydrogen and various mixtures containing carbon monoxide and hydrogen has become increasingly important in recent years. This paper will present a brief description of this process together with typical applications of its current use in various fields.

Hydrocarbons will react with steam over catalysts at elevated temperatures so that the hydrocarbons are almost completely converted to carbon oxides and hydrogen. The two principal reactions which occur with the paraffin hydrocarbons are as follows:

(1) $C_nH(2n+2) + nH_2O = nCO + (2n+1)\ H_2$

(2) $C_nH(2n+2) + 2nH_2O = nCO_2 + (3n+1)H_2$

These reactions are both endothermic. Reaction (2) is considered to be the summation of reaction (1) and:

(3) $nCO + nH_2O = nCO_2 + nH_2$

Hydrogen For Petroleum Hydrogenation

Although the patent literature in connection with this process dates back to about 1880, the first large-scale commercial development of the process in this country was for the purpose of producing relatively pure hydrogen, and was carried out by the Standard Oil Company of New Jersey through its development company working jointly with I. G. Farbenindustrie. A large plant was installed at Bayway, New Jersey in 1930 and a second and larger plant was placed in operation in 1931 at Baton Rouge, Louisiana. In this latter plant, natural gas was reacted with steam to produce a mixture of carbon monoxide, carbon dioxide and hydrogen at about 1600°F in a furnace containing vertical chrome-nickel alloy steel tubes. The furnace tubes contained a nickel catalyst supported on a refractory material. The hydrocarbon-steam reaction occurred as the natural gas and steam were passed down through the tubes. On the outlet of the furnace, the gaseous products were cooled by the addition of more steam, and the mixture was then passed through a catalytic converter containing an iron oxide catalyst which promoted the oxidation of carbon monoxide to carbon dioxide (reaction (3) above). This reaction took place at about 850°F. The gas mixture from the catalytic converter was cooled and stored in a gas holder. This gas contained about 77 per cent hydrogen with about 18 per cent carbon dioxide and the balance carbon monoxide, methane and nitrogen. On removing the carbon dioxide from this gas mixture by scrubbing with monoethanolamine solution (the Girbotol process), a hydrogen gas was obtained which contained about 95 per cent hydrogen together with roughly 1.5 per cent methane, 2.0 per cent carbon monoxide, 1.5 per cent nitrogen (present originally in the natural gas), and a trace of carbon dioxide.

This gas was suitable for the hydrogenation of various petroleum materials and has been used off and on for this purpose on a large scale since 1931, particularly during the last war. Several other rather large plants have also been installed since 1931 for the production of hydrogen for the hydrogenation of petroleum products, namely at Port Arthur, Texas; Whiting, Indiana; Salt Lake City, Utah; Richmond, California; and Aruba, N.W.I., but some of these have discontinued operation as a result of the development of more economical processes for producing all grades of gasoline.

Hydrogen For Ammonia Synthesis

The second large-scale utilization of the hydrocarbon-steam process for the production of hydrogen-containing gas mixtures has been in the field of ammonia synthesis. This process has been employed on a large scale in the following synthetic ammonia plants: Hercules Powder Company at Hercules, California and Louisiana, Missouri (Missouri Ordnance Works); Alberta Nitrogen Products Limited at Calgary, Alberta; Spencer Chemical Company, Pittsburg, Kansas (Jayhawk Ordnance Works); Lion Oil Refining Company, El Dorado, Arkansas (Ozark Ordnance Works); Commercial Solvents Company, Sterlington, Louisiana (Dixie Ordnance Works); Mathieson Chemical Corporation, Lake Charles, Louisiana; and Cactus Ordnance Works, Dumas, Texas. These plants have been able to produce synthetic ammonia at very reasonable cost and their operation has been highly successful. Sulphur compounds, which are troublesome impurities in ammonia synthesis gas made from coke, are not present in synthesis gas made by the hydrocarbon-steam process.

Several methods are in use for introducing nitrogen into the hydrogen gas to obtain the desired 3:1 hydrogen-nitrogen ratio for ammonia synthesis. Flue gas from the cracking furnace may be cooled, compressed and introduced with the steam and hydrocarbon in the furnace feed; hydrocarbon gas may be burned in an inert gas generator and the resulting flue gas introduced into the cracking furnace effluent; or air in the proper ration may be introduced into the furnace effluent so that the oxygen is reacted with some of the hydrogen, leaving the proper hydrogen-nitrogen ratio.

Carbon monoxide in the ammonia synthesis gas is largely removed by converting it to carbon dioxide as has already been described for the petroleum hydrogenation plants. Carbon dioxide is removed in some cases by the Girbotol absorption process and in other cases by ab-

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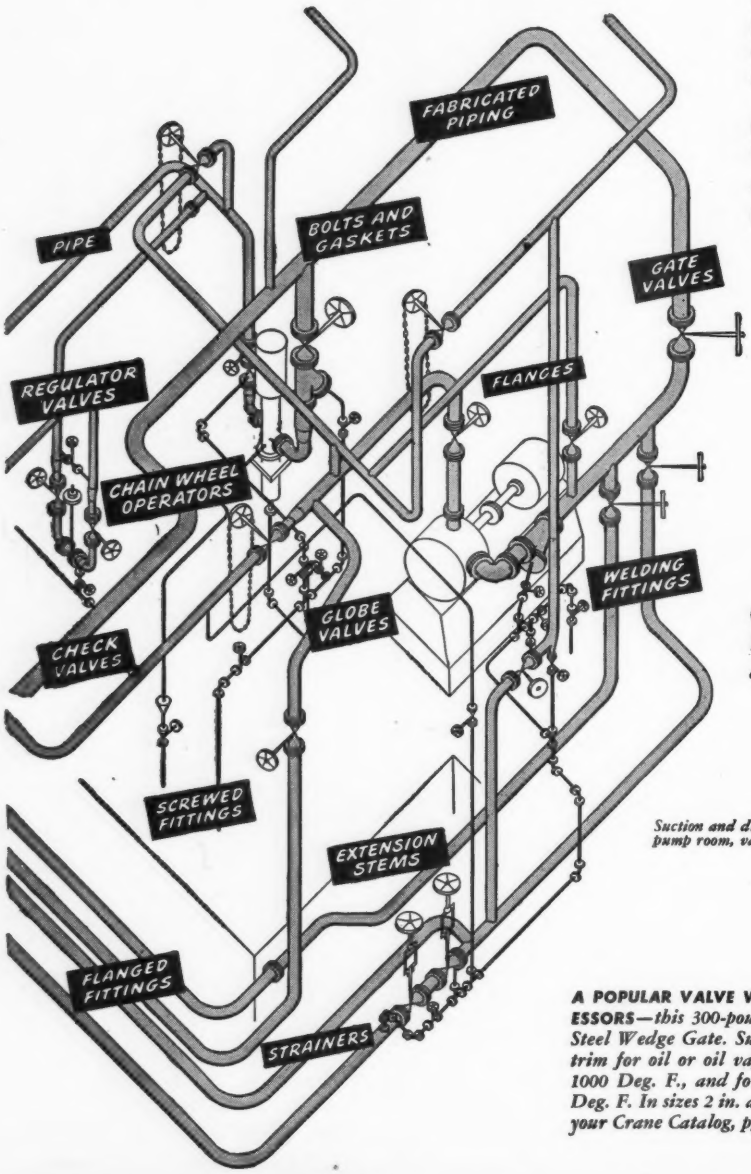

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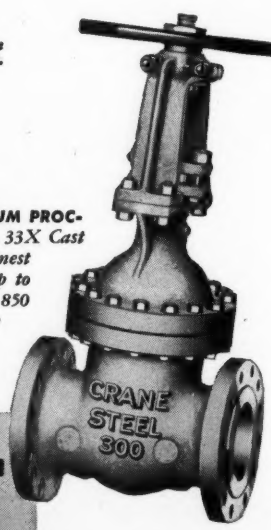

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sorption in water after compressing the gas to 300 or 400 pounds per square inch. Small concentrations of carbon dioxide remaining after the water scrubbing step are removed by further scrubbing with caustic soda solution. The small concentration of carbon monoxide remaining after the conversion step is removed by scrubbing the gas with ammoniacal copper solution or by passing it over a special catalyst or spent ammonia synthesis catalyst to react the carbon monoxide with hydrogen to form water vapor and methane. This step is usually termed methanation and the reaction is the reverse of reaction (1) above. Thus, conventional ammonia synthesis gas made from hydrocarbons and steam consists essentially of a 3:1 mixture of hydrogen and nitrogen with a small percentage of methane as impurity. The methane is separated by purging after the ammonia has been synthesized and liquefied.

Synthesis of ammonia is carried out over a catalyst at about 800°F and at a pressure of approximately 4500 pounds per square inch in some plants.

In other plants the pressure is held at approximately 14,000 pounds per square inch. At the lower reaction pressure considerably more recycling of the synthesis gas over the ammonia catalyst is required, but in both cases utilization of the hydrogen-nitrogen mixture is virtually complete and only a small amount of gas is purged to rid the system of accumulated methane, argon, and other fixed gases.

High-Purity Hydrogen

The hydrocarbons used in the plants mentioned above have been natural gas and refinery gases, both of which are normally gaseous mixtures. Several years ago, The Girdler Corporation adapted the hydrocarbon-steam process to the production of hydrogen of high purity, utilizing propane and butane as process materials so that hydrogen plants could be built in locations in which natural gas or refinery gases are not available. In addition to their relatively greater availability, propane and butane are advantageous process materials for use in cases in which it is necessary to produce hydrogen entirely free from nitrogen since much of the natural gas in the country does contain some nitrogen which appears in the finished hydrogen. Where suitable natural gas is available, however, high-purity hydrogen can be, and is, produced by this process. Pilot plant work on the use of hydrocarbons in the gasoline range and heavier for feed material to steam-hydrocarbon furnaces is now being conducted by The Girdler Corporation.

High-purity hydrogen has found its principal use in the hydrogenation of various animal and vegetable oils in the presence of nickel catalysts. In such operations, it is necessary to use hydrogen substantially free from carbon monoxide since this impurity is a catalyst poison under the conditions employed in such hydrogenations. It is also necessary for the hydrogen to be entirely free from sulphur compounds. Both of these impurities are effectively eliminated from the finished hydrogen during its production.

A typical plant for the production of high-purity hydrogen from propane or butane will consist of the following sections:

1. Hydrocarbon handling and purification
2. Hydrogen production
3. Hydrogen purification
4. Amine reactivation
5. Hydrogen compression and storage

The flow diagram for Girdler's Hygirtol hydrogen manufacturing

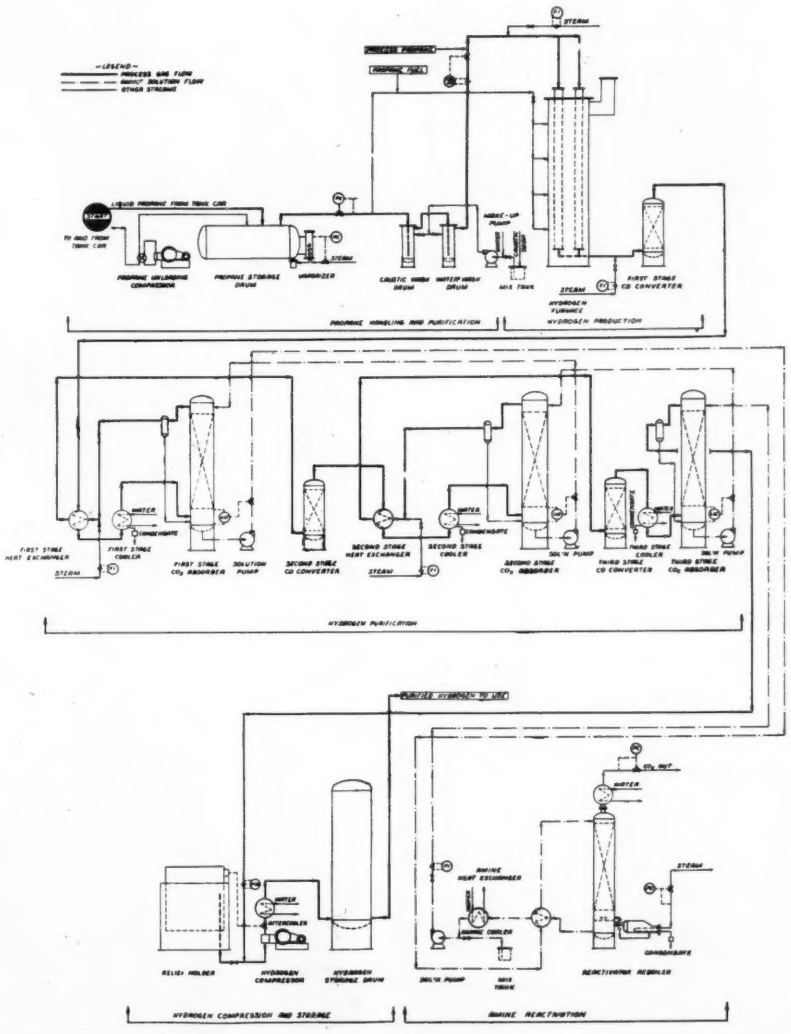

FIGURE 1. FLOW DIAGRAM - GIRDLER HYGIRTOL HYDROGEN MANUFACTURING PLANT

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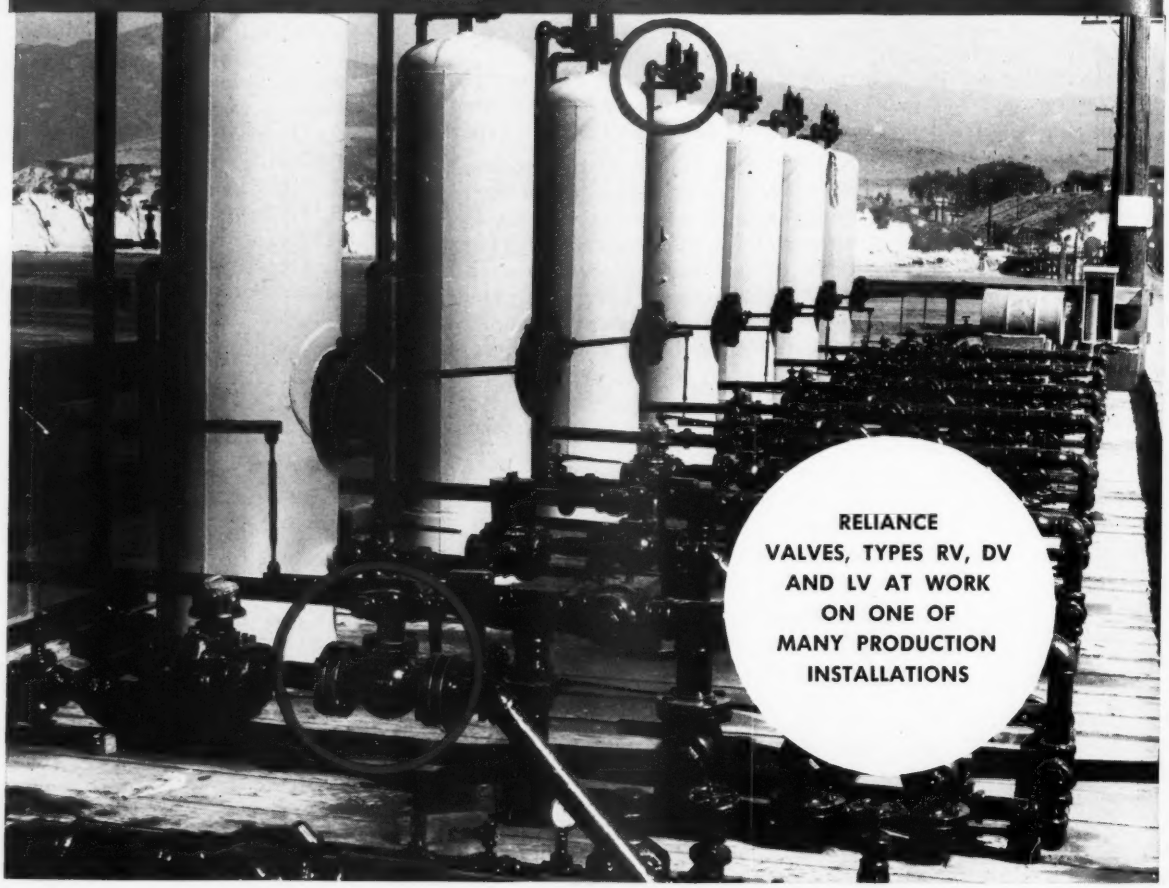

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plant is shown in Figure 1. A plant of this type will produce hydrogen of sufficient purity to be utilized in all applications requiring pure hydrogen except for those few specialized uses such as the heat treating of vacuum tube electrodes in which traces of carbon compounds cannot be tolerated. Hygirtol plant hydrogen can, however, be further purified so as to be suitable for this use also.

The storage and handling of propane and butane is carried out in the same manner as is done in ordinary LPG installations. Storage tanks of such size are provided that tank car shipments of liquid hydrocarbons may be unloaded and stored. Conventional vaporizers are employed to vaporize the liquid hydrocarbon as needed.

Since commercial propane and butane may contain traces of sulphur compounds, either present as impurities or added as odorants, it is necessary to desulphurize these materials before they are utilized for hydrogen production. There are several simple methods available for effecting this desulphurization. In the flow diagram shown here, a caustic wash and a water wash are employed. This method is suitable for removing traces of mercaptans such as might be present in propane or butane obtained from natural gasoline. When handling materials obtained from refinery operations which may contain impurities such as carbonyl sulphide, it is necessary to employ a catalytic process for treating the feedstock.

The hydrogen production section of the plant consists of the hydrogen furnace itself containing vertical alloy steel tubes filled with a supported nickel catalyst through which the hydrocarbon-steam mixture is passed at a temperature of about 1400 to 1600°F. At the outlet of the furnace, steam is added to the product gas stream to cool it to about 700°F before it enters the first-stage converter where most of the carbon monoxide is converted into carbon dioxide and hydrogen. From the outlet of the converter, the hot product gases pass through the first-stage heat exchanger, then through a cooler and into the first-stage carbon dioxide absorber. In this absorber, the carbon dioxide present in the gas mixture is removed by scrubbing with aqueous monoethanolamine solution. The product gas leaving the absorber is mixed with steam, passed back through the first-stage heat exchanger to reheat it to 700°F, and then passed through the second-stage carbon monoxide converter in which more of the carbon monoxide present in the gas reacts to produce carbon dioxide and hydrogen. The hot gases from the converter pass through another heat exchanger and cooler and then enter the second-stage carbon dioxide absorber. Here again carbon dioxide is removed from the gas stream by scrubbing with the monoethanolamine solution and the purified gas is again mixed with steam, passed through the heat exchanger and into the third-stage carbon monoxide converter. On the outlet of this converter the gas stream passes through a final cooler and into the third-stage carbon dioxide absorber in which the carbon dioxide produced in the third-stage carbon monoxide converter is scrubbed from the purified hydrogen stream by the monoethanolamine solution. Methanation, mentioned above, is sometimes used in place of the third stage of conversion.

The hydrogen produced in a Hygirtol plant of the type shown in Figure 1 has approximately the following analysis:

Component	Mol Per Cent
CO_2	0.01
CO	0.01
CH_4	0.10
N_2	0.01
O_2	0.00
H_2	99.87
	100.00

Hydrogen of this purity has been found suitable for use in the hydrogenation of edible oils and in other operations where high-purity hydrogen is required.

The carbon dioxide removal in this hydrogen plant is effected in a typical Girbotol unit in which the monoethanolamine solution is reactivated by steam stripping in a packed or plate reactivator tower and in which the absorption is carried out in three stages with the same solution being used in series in the three absorbers.

A photograph of a Hygirtol hydrogen plant of the type just described is shown in Figure 2. At the left may be seen two caustic scrubbers and a water scrubber for removing sulphur compounds from the process propane. The top flanges of the two underground propane storage tanks may be seen in the left foreground with the propane vaporizer appearing just be-

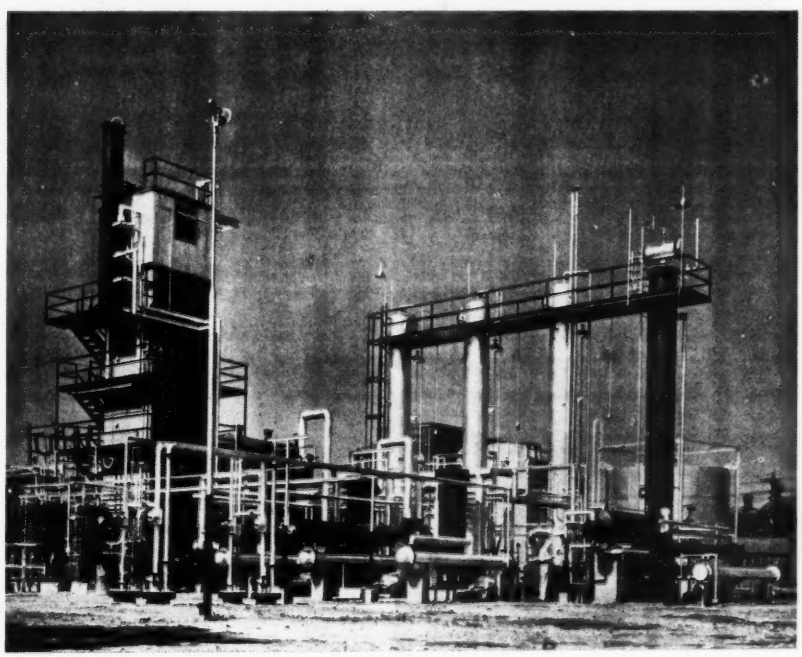
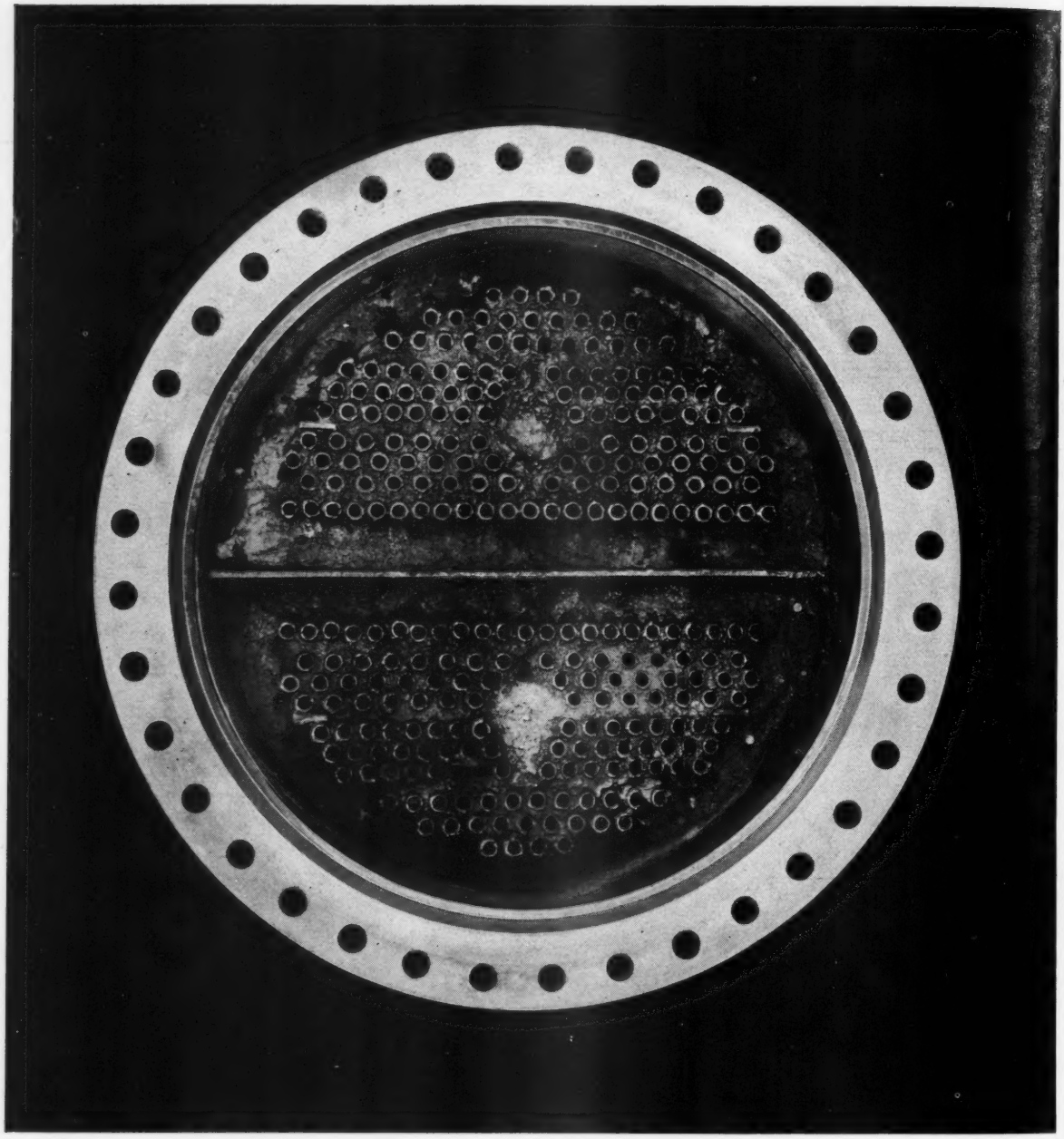


Figure 2. Girdler Hygirtol High Purity Hydrogen Manufacturing Plant



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hind them. The hydrogen furnace is shown in the left rear portion of the picture while the three carbon monoxide converters may be seen in the center just behind the two gas heat exchangers and the three gas coolers. The three carbon dioxide absorbers are shown at the right with the Girbotol plant reactivator at the extreme right. The water cooling tower and the hydrogen gas holder may be seen in the rear of the picture.

The cost of producing hydrogen in a plant of this type will depend upon the cost of the process materials as well as utility and labor costs. The process material and utility requirements for producing pure hydrogen in a typical Hygirtol plant are approximately as follows per thousand cubic feet of hydrogen:

Material	Quantity per MCF of H_2
Process material,	
Propane	2.75 gal.
or Natural gas	250 cu. ft.
Fuel (gas or oil)	250,000 BTU
Steam	380 lbs.
Cooling water (30°F rise)	1,600 gal.
Power	2 KWH
Chemicals	2 cents

The operation of the plant is continuous and requires only part-time supervision by one attendant. In most locations, the major equipment can be placed outdoors as shown in the plant in Figure 2.

Pure carbon dioxide is obtained as a byproduct in Hygirtol plant operation. This amounts to approximately 35 pounds of carbon dioxide per thousand cubic feet of hydrogen produced. By the addition of scrubbing and compression equipment, liquid carbon dioxide may be recovered for sale or use. The carbon dioxide gas produced by the plant is also suitable for firefighting, purging and blanketing operations.

Another important use for high-purity hydrogen as produced in a Hygirtol plant is in the preparation of anhydrous hydrogen chloride for plastics manufacture and other purposes. Although hydrogen and chlorine as made in the conventional electrolytic process can and are being used directly for this purpose, it has turned out to be more economical for some plant locations to have chlorine shipped in by tank car and to prepare hydrogen gas separately from propane which is also shipped in by tank car.

A third use for high-purity hydrogen is in the synthesis of organic chemicals derived from light petroleum hydrocarbons. A large chemical plant near Bishop, Texas is now using substantial quantities of high-purity hydrogen in the synthesis of a number of organic chemicals.

At the present time, there are some ten Hygirtol high-purity hydrogen plants in operation with an equal number in various stages of construction. In size, some of these plants are smaller than the petroleum hydrogenation or the ammonia synthesis gas plants, having daily hydrogen production rates ranging from about 100,000 to 1,000,000 standard cubic feet per day. The rapidly increasing number of these plants attests to their economy and efficiency. Designs have been developed for much larger plants of this type and designs are being completed for smaller plants to satisfy the needs of some small users of hydrogen, particularly in the edible fats and chemical fields.

Hydrogen-Carbon Monoxide Mixtures

Since the gas mixture resulting from the steam-hydrocarbon reaction consists of carbon monoxide, carbon dioxide and hydrogen, it is possible to produce mixtures of carbon monoxide and hydrogen which are suitable for use in various synthesis operations such as the methanol and Fischer-Tropsch syntheses. In order to obtain the high $CO:H_2$ ratios required in many of these synthesis gas mixtures, it is necessary to introduce carbon dioxide into the reformer furnace to replace part or all of the steam used to react with the hydrocarbon. The following reaction is involved:

(4) $C_nH(2n+2) + nCO_2 = 2nCO + (n+1)H_2$

Under many conditions the reactions can be carried out so that there will be only a small amount of carbon dioxide in the product gas, but if complete carbon dioxide removal is required, this component can be removed by Girbotol scrubbing.

A synthesis gas production plant has recently been built for the Bureau of Mines at Bruceton, Pennsylvania by The Girdler Corporation. A view of this plant is shown in Figure 3. It will be noted that there are two furnaces. One is used in the production of pure hydrogen and the other is used for producing $CO:H_2$ mixtures. In order to produce the carbon dioxide necessary for use in the second furnace, natural gas is burned in an inert gas

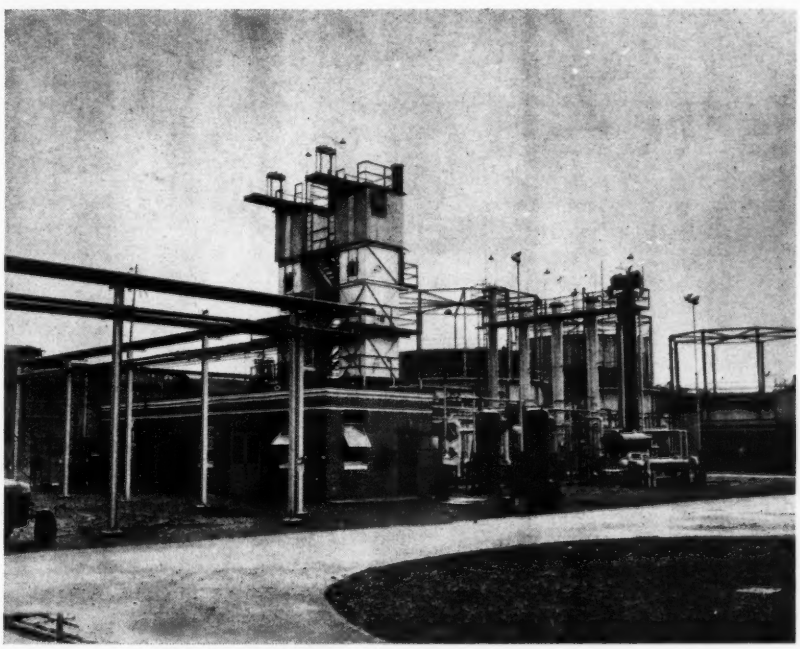

Figure 3. Synthesis Gas Production Plant

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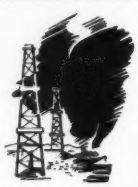

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generator and the carbon dioxide is recovered from the resulting flue gases by scrubbing with amine solution, although the carbon dioxide could be recovered from the flue gas from the furnace itself. The absorber shown on the left side of the bank of towers in the center of the picture is for carbon dioxide recovery. The other towers are the normal carbon dioxide absorbers and reactivator in the Hygirtol plant.

In this plant $CO:H_2$ ratios as high as 10 to 1 have been produced, so that it is capable of making any desired mixture of hydrogen and carbon monoxide from pure hydrogen down to a gas containing less than 10 per cent hydrogen and the balance carbon monoxide. By proper control of the ratios of reactants and the operating conditions in the furnace, very accurate control of the $CO:H_2$ ratio is easily attainable.

While the principal object of the Fischer-Tropsch type of plant is to produce liquid fuels, principally gasoline, from $CO:H_2$ mixtures, a considerable quantity of coproducts, mainly ethanol, propanol, butanol, acetic acid, propionic acid, acetone, methyl ethyl ketone, and acetaldehyde will also be produced. These are only the more important organic chemicals that will be available from this source, and it is expected that a number of more complex organic acids, alcohols and ketones will also be available, but in smaller quantities.

An entirely different use for $CO:H_2$ mixtures is in the reduction of various metal oxides and ores. At the present time applications of this nature are being actively explored in a number of locations.

Utility Sendout Gas

Another field in which a great deal of interest is being manifested at the present time is in the production of gas mixtures suitable for use in supplementing manufactured gas such as coke oven gas or carbureated water-gas for distribution through utility company mains.

The hydrocarbon-steam reaction has been found quite adaptable for the production of gas mixtures used for making blends equivalent to usual types of manufactured gas. The reformer furnace gas will have a very low specific gravity and a heating value of approximately 300 BTU per cubic foot. This can then be blended with propane or butane or other hydrocarbons to raise the heating value to the desired level. In some instances, a suitable blending gas can be obtained by replacing part or all of the steam in the reformer furnace with air which will produce a product gas of somewhat lower BTU content and higher specific gravity than is obtained with steam.

In the following table are indicated some typical fuel gas mixtures obtainable by blending steam-hydrocarbon furnace effluent gases with propane:

Blend	Mol Per Cent					Specific Gravity	GHV BTU/SCF
	H_2	CO	CO_2	N_2	C_3H_8		
1. Propane cracked with steam	72.5	19.2	8.3	..	..	0.36	298
2. No. 1 blended with propane ..	64.9	17.2	7.4	..	10.5	0.49	540
3. Propane cracked with air	31.0	22.2	1.0	45.8	..	0.70	173
4. No. 3 blended with propane ..	26.4	18.8	0.8	39.0	15.0	0.83	540

By various adjustments of the hydrocarbon-steam-air feed to the cracking furnace and by blending in various quantities of propane or butane, a fuel gas of almost any desired combination of gross heating value and specific gravity may be produced. Several installations of this type are already in use or under construction on the Eastern Seaboard.

The foregoing discussion has been presented in order to review the present-day status of the manufacture of hydrogen and mixtures of hydrogen and other gases for various purposes, from natural gas, light hydrocarbons and steam. Although the process was originally applied in the petroleum industry, it has now found numerous applications, both on a large and small scale, in several branches in the chemical industry and in the food industry, still using, however, raw materials derived from petroleum or natural gas.

The Price of Oil

A Senate subcommittee recently expressed the hope that the oil industry would avoid further price increases so "any Federal action looking toward price controls or compulsory allocations may be avoided."

Some people may draw from that the inference that in the past the oil industry has jacked up it prices as rapidly as possible. Nothing could be farther from the mark. The industry's firm policy has been to sell its products at the lowest price consistent with sound, progressive operations. That is why the increases which have taken place in oil prices have, for the most part, been substantially less than the increases in commodity prices as a whole.

Higher gasoline and other oil prices have evolved from natural causes. It has been necessary, for instance, to periodically raise the price paid for crude in order to encourage production. New refineries, pipe lines and other facilities cost two to three times as much to construct now as before the war. And, finally, the oil industry, like all others, must pay current higher wages and other costs.

What the public must realize is that free enterprise not only gives us products at the lowest possible price, but also gives us peak production. Price control would not and could not produce a single additional barrel of oil. On the other hand, it would probably reduce output, due to red tape and bureaucratic inertia, thereby creating shortages which it would ration. The past record of the industry, in peace and war, justifies the fullest public confidence in its policies.

Progress is the American Way of life. The petroleum industry IS progressive.

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AN IDEAL ROTARY saves Time and Money!

THERE'S an *IDEAL* Rotary to give you profitable performance on well after well, whether you're drilling through the softest shale or the hardest chert!

Whether you require a medium or high speed machine, *you can select the right rotary for your specific job* from the complete line of National-Ideal fully enclosed oil bath tables.

Write for descriptive literature or have your National Supply representative point out the unusual construction features of these rotaries that assure long, low-cost service under the most severe field conditions. He will gladly recommend the outfit best suited to your needs.

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FOR DRILLING TO GREATEST DEPTHS

The outstanding rotary for deep well drilling in field after field because of its simple design... remarkable strength and durability... and its ability to rotate heavy drill strings at high speeds. Spiral bevel gears with hardened teeth plus special mud and oil seals are just a few reasons why this machine has been able to establish so many drilling records. Table opening 20½". Made with A.P.I. 53¼" spacing (center of table to center of sprocket).

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THE INDUSTRY'S MOST COMPLETE LINE OF OIL FIELD EQUIPMENT

The Role of Paint in Combating Corrosion in the Petroleum Industry

By
Paul L. Lotz
Socony Paint Products Division of
Socony-Vacuum Oil Co., Inc.,
New York, N. Y.

All metals corrode when placed in an unfavorable environment. In the water and oxygen environment in which we live ordinary iron is unfortunately the most susceptible to corrosion. In the corrosion process the iron first enters into solution in the adherent moisture film. Thus, something does not enter into the metal and corrode it,—the metal dissolves, takes on an electrical charge, becomes reactive and combines with oxygen, forming rust. This rust film does not inhibit further action—**it actually stimulates corrosion.**

The corrosion process, therefore, is electrolytic in character. Differences in electrical potential at the steel surface result from impurities in the metal, differing crystal structure, strain areas, particles of sand, cinders, dust, etc. Between these electrolytically dissimilar areas numerous small galvanic cells are established. A flow of electrical current occurs between these anodic and cathodic areas aided by the electrolytic path furnished by surface moisture. It is through the action of these cells that corrosion occurs. It is this lack of uniformity in the surface that results in the irregular pattern with which corrosion proceeds.

The rate of corrosion increases with the current flow which is influenced by the conductivity of the moisture film. In coastal regions saline impurities increase conductivity while acidic gases in industrial communities have a similar effect. Favorable environments are established by the introduction of certain soluble materials into the moisture film. Basic materials reduce hydrogen ion concentration while chromates alter the nature of the steel surface. In bonderizing a tightly adherent surface film of lower solution potential is developed. The steel surface is thus enobled and the tendency to rust greatly reduced.

In combating corrosion, paint functions principally by establishing favorable environments.

1. By "sealing off" the steel surface from the corrosive environment—water-proofing.
2. By pigmentations that alter the environment.

While all paint systems depend, to a large extent, on excluding the normal environment no practical system has been developed which approaches complete exclusion of moisture. All paints are permeable to a greater or lesser extent. We must, therefore, utilize pigments which function by altering the corrosive environment. Such materials are known to the paint technicians as "inhibitive pigments"—they retard or inhibit the corrosion process. These consist of basic pigments such as red lead, blue lead, basic lead chromate and zinc oxide, slightly water soluble zinc yellow (so called "zinc chromate") and highly electro-positive metallic zinc. Pigments such as these perform quite effectively in "denaturing" or altering the corrosive materials which otherwise reach the steel surface. In this process, however, the inhibitive pigment itself is altered and its effectiveness destroyed.

It thus becomes necessary to divide the problem. Inhibitive pigments are incorporated into paints applied next to the metal, (the Primer) where their corrective influence is required. The primer is then protected by a top coat which is known as the Finishing Coat Paint. Finishing Coat Paints are pigmented with less reactive materials. They are designed to resist weathering, promote long wear, retain color and maintain a uniform, clean appearance. The primer and the finishing coat thus supplement one another, each performing its specific but different task.

Highly impermeable primers have been produced. These paints are manufactured with spar varnishes, bodied oils, phenolic resin varnishes and so-called "synthetic" (alkyd) vehicles. They have the added advantage of quick drying and are quite effective in sealing off or

Standard Oil Co.'s maintenance crew building oil field header on the Vickers Lease in the Inglewood Field. Left to right: C. R. Dillard, roustabout; O. C. Calhoun, roustabout; T. R. Burch, roustabout; C. W. Hooper, roustabout; J. A. Burgess, foreman.

10 GOOD REASONS WHY OPERATORS PREFER

McCullough GUN PERFORATOR SERVICE

1. **MEETS EVERY CONDITION.** Guns fired either electrically or mechanically: guns run on cable, sand line, drill pipe, tubing, or on piano-wire measuring line in extremely high-pressure wells.
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3. **ACCURATE DEPTH MEASUREMENTS** put the shots right where you order them.
4. **MAXIMUM PENETRATION** of bullets into the formation, as proved repeatedly in competitive field tests.
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7. **BURRLESS BULLETS,** giving a completely burr-free hole, eliminating casing scraping, with *no* sacrifice of penetration.
8. **NO LOST TIME.** McCullough's simpler, lighter equipment cuts setting-up and moving-out time, speeds up every job.
9. **EXPERIENCED MEN.** With years of experience behind them, thoroughly-trained McCullough gun-perforating crews do their jobs quickly, efficiently, safely.

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waterproofing the steel surface from the normal corrosive environment. Unfortunately, with such primers it is impossible to secure satisfactory bonding to the steel unless the surface is sand-blasted. The primer, however, must perform satisfactorily under adverse conditions and with a minimum effort on the part of the painter. It is difficult if not impossible to prepare a perfectly clean, dry surface for painting under actual operating conditions. The primer must perform even if all the rust is not removed. Furthermore it must have good penetrative or "creeping" qualities so that parts around bolts and seams that are relatively inaccessible shall receive protection. Unfortunately, quick setting or quick drying primers do not perform this function satisfactorily.

Primers produced entirely or largely with thin-bodied, highly fluid linseed oil perform satisfactorily on normally prepared steel surfaces. Comparisons made between applications to wire brushed, rusted steel plates exhibit startling differences in the wetting qualities of linseed oil versus heat processed vehicle primers. Linseed oil products exhibit the highly desirable penetrative or "creeping" qualities, indicating complete saturation of the surface. On the other hand, the quick setting varnish type show no indication of this desirable and necessary property. A test demonstrating this effect is quite convincing.

Considerable difficulty was experienced by the Navy with quick drying primers during the war when speed in painting as in all other productive effort was of the essence. It was impractical to demand ideal sand-blasted surfaces, the paint had to perform over poorly prepared, rusty steel. Quick drying primers applied under such conditions failed to wet the surface, bridged over rust and scale and failures occurred in a matter of days. Satisfactory performance, however, was obtained by pre-treatment with drying oil type wetting agents which performed satisfactorily the task of wetting, saturating and satisfying the imperfectly prepared surface.

To combat corrosion and protect equipment to unusual and severe service, special chemical resistant coatings are required. In the petroleum industry such severe conditions include:

1. Interior of storage tanks containing corrosive crudes and unfinished stocks.
2. Interior of tankers, harbor barges, etc.
3. Interior of tank trucks carrying aviation gasoline, fuel oil, etc.
4. Tanks, drums, and other critical parts of processing units.
5. Structural members of buildings exposed to acid, alkali, solvents and corrosive fumes.
6. Tank cars hauling corrosive chemicals, solvents, etc.

To meet such severe service requirements paint technicians, with the aid of newly developed coatings materials, have developed four general types of chemical resistant coatings. These coatings have properties which suggest the term "plastic," and reference to them as "plastics" has become quite popular. These coatings are based on and may be classified as:

1. Chlorinated Rubber Systems
2. Vinyl Systems
3. Vinyl Resin—Latex Dispersion Systems
4. Styrene Systems

Chlorinated Rubber Base Paints have been manufactured for more than 10 years. Such coatings are successfully used for finishing concrete floors, cement asbestos shingles and concrete swimming pools. They have also performed satisfactorily on the interior of steel tank cars hauling 50% caustic soda solutions where the temperature does not exceed 130° F. Chlorinated rubber finishes are also suitable for industrial machinery where equipment must be protected from chemicals.

These coatings exhibit excellent alkali resistance. Solvents used are relatively low in toxicity. These products may be applied by brush or spray. They exhibit relatively poor resistance to fats, oils and solvents.

Vinyl coatings exhibit the best chemical resistance of the group. They have excellent solvent resistance but require strong, toxic thinners such as toluol and ketones. These finishes are suitable for both interior and exterior service. They are resistant to aromatic solvents, high concentrations of acids, and alkalies. They exhibit poor resistance to acetic acid. The chief limitations of the vinyl group are their low solids content (5 to 6 coats required for adequate protection) and the necessity of a perfectly clean surface in order to provide satisfactory adhesion. Sandblasting must be resorted to.

Vinyl coatings are ineffective at temperatures above 140° F.

Vinyl-Latex Dispersion Coatings perform similarly to the Vinyls,—solvent resistance, however is superior. The latices consisting of Buna N or Thiokol are the sole plasticizer. Solvents used are similar to those required in the preparation of Vinyls. They demand similar care in handling and in application.

Styrene coatings are of two general types—those in which the resin is "cold plasticized" and those in which the Styrene is reacted under heat with vegetable oil plasticizers. Both types exhibit excellent resistance to chemicals but poor resistance to solvents. This field is relatively new but shows considerable promise.

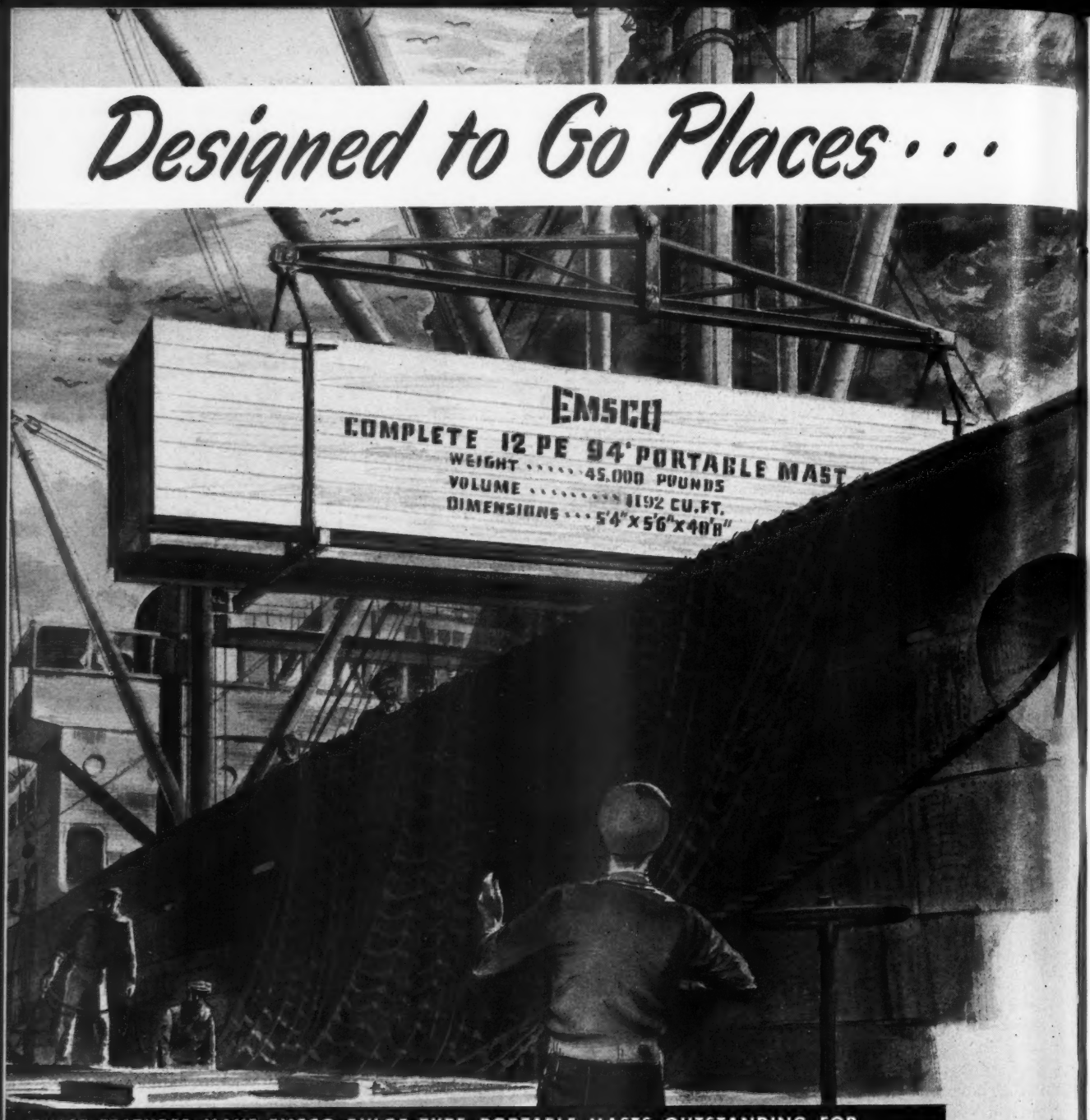
Chemical Resistant Coatings are all classified as fast setting, quick drying products. Such coatings, as would be expected, require careful and complete surface preparation and considerably more care in application than do ordinary paints. They are not a "cure all." They have, however, shown considerable promise in solving corrosion problems, which until now have appeared to be hopeless of solution to the paint technologist.

Above paper presented at the A.P.I. Meeting held in Philadelphia, Pa.

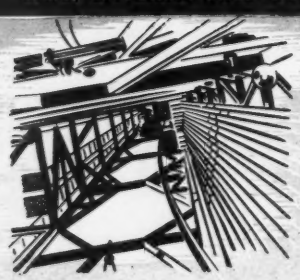
Beach Well Programmed

R. W. Jerman, Inc., is about to spud Victory No. 1 on Sec. 24-4s-12w at Long Beach. The project probably will go deep for a conclusive look at the lower formations. Shell's Alamitos No. 50 on Sec. 29-4s-12w is drilling ahead at 3644 ft. West American Oil's No. 15 on Sec. 30-4s-12w is standing cemented, after running combination string to bottom at 3275 ft.

Designed to Go Places . . .

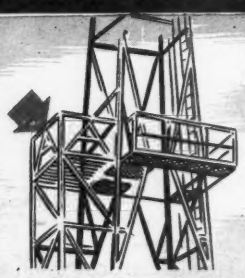


THESE FEATURES MAKE EMSCO BULGE TYPE PORTABLE MASTS OUTSTANDING FOR SAFE, EFFICIENT AND ECONOMICAL OPERATION UNDER ALL DRILLING CONDITIONS.



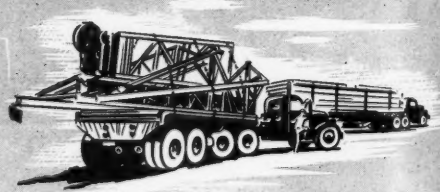
NO INTERIOR BRACING

Freedom from interior bracing gives complete visibility to both driller and derrick man. Increased clearance for traveling block promotes safety.



BULGE FEATURE

Emsco exclusive bulge feature permits racking of pipe inside base of derrick. Casing may be run without removing racked drill pipe.

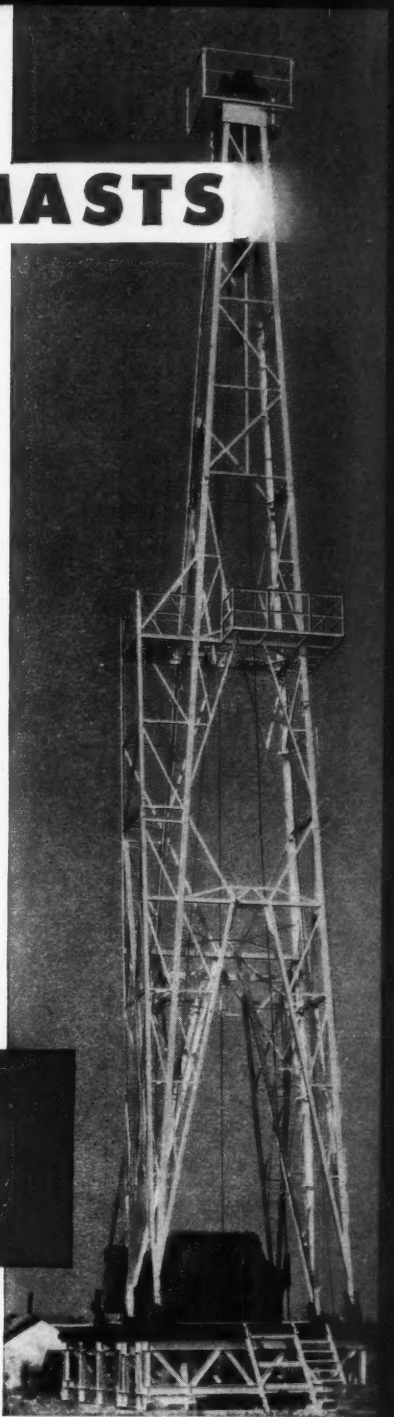


COMPLETELY PORTABLE

Masts may be readily broken down into roadwidth packages, or moved intact. Blocks are strung before erection. Unnecessary to unstring blocks during moving.

EMSCO PORTABLE MASTS

Bolted & Galvanized for Export Service



Emsco's new PE series portable masts are engineered for export service. Special bolted construction reduces shipping costs 80%! Hot dip galvanizing of entire mast affords permanent protection against corrosion. Emsco export masts have all features of Emsco domestic bulge type units for fast, safe, cost-saving development of remote, inaccessible fields.

Today's widespread field operations frequently require portable drilling equipment. In foreign fields, however, the use of portable masts has been restricted by high costs involved in water transport of the large, cumbersome mast sections. The new Emsco PE series of export portable masts solve this problem. These new masts are assembled from small welded sections which are bolted together. These small sections are designed to provide a substantial reduction in shipping bulk. A complete 94′, 12 PE mast boxed for export measures only 5′6″ x 5′4″ x 40′8″—one-fifth that of a standard domestic mast. These compact, easily handled units reduce shipping costs 80%! The sturdy, compact box permits loading in hold of ship. Thus, the entire mast is protected against rough handling and the weather during water transport. Also, the lumber used for boxing frequently can be profitably reused for field erection of tool sheds, etc. Small welded sections permit hot dip galvanizing of entire mast. This means permanent protection against corrosion and greatly reduced maintenance costs. After export mast is originally assembled in the field, it is moved and operated like a domestic unit. These new export portable masts incorporate all field-proven features of Emsco standard bulge type masts. They are available in 94, 129 and 136 foot heights with crown block capacity ratings in excess of 400,000 lbs. Ask your nearest Emsco representative for information on the PE series of bulge type portable masts—the newest addition to the Emsco line.

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Houston, Texas • Los Angeles, Calif. • Dallas, Texas

EMSCO
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"Pacemakers in Oil Field Equipment Design"

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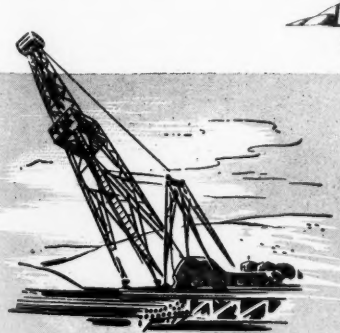
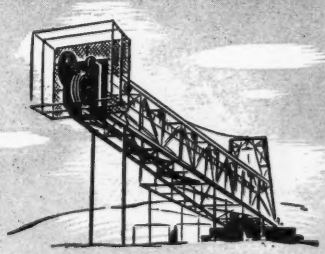


EASY FIELD ERECTION
Mast easily and quickly erected by draw works. Patented safety features insure positive control of mast during raising or lowering.

SAFE WORKING PLATFORM
Split board working platform allows safe, easy handling of pipe and elevators. Platform has lateral adjustment to permit any desired positioning.



STRUCTURAL RIGIDITY
Lacing of all four faces of mast eliminates need for interior bracing. Welded joints and small cross section practically eliminate vibration and weaving.

Personalities IN THE NEWS

Charles R. Brown Elected Vice Pres. of Tide Water

Charles R. Brown has been appointed a Vice President of Tide Water Associated Oil Company according to announcement made by President William F. Humphrey.

Charles R. Brown

Brown has served as Assistant to the President for many years and is a member of the Company's Western Division Operating Committee. He shall continue his general administrative duties with direct responsibility for many of Tide Water Associated's administrative departments in the Western Division.

A native of San Francisco, Brown is a Director and officer of the Olympic Club.

He recently concluded his thirty-first year of continuous service with Tide Water Associated Oil Company.

Louis Chappuis, geologist, has completed a business tour to Tampico and other points in old Mexico and has returned to his Los Angeles office.

His Excellency, Ezzat H. Gaafar Bey, Chief Majaliss of the oil-rich Shaikdom of Kuwait, was the luncheon guest of members of the oil fraternity during his recent visit at Los Angeles. His hosts were Sam Mosher of Signal Oil & Gas Co., and John Hancock of Hancock Oil Co. These firms are included in the American companies which organized the American Independent Oil Co. last year. The combination of interests was formed to develop oil in the Kuwait section of the neutral zone between Kuwait and Saudi Arabia, on the Persian Gulf. The visiting Arabian speaks seven languages. He inspected oil fields and other points of interest in the Los Angeles area, and then went to San Francisco for a week in that area. Oil reserves on Gaafar Bey's land are estimated at 11,000,000,000 barrels, with only about half of the fields developed.

Gustav Egloff, director of research for Universal Oil Products for more than a quarter of a century, will be a featured speaker at the 18th annual meeting of the Independent Petroleum Association of America. The meeting will be held September 27-28 at San Antonio, Tex. The renowned scientist will speak on "Can the United States Be Self Contained as to Oil?"

William Louis Ruschhaupt, 48, manager of the California Fresno Oil Co., passed away recently in Fresno. He was widely known in California oil circles.

George Atha, independent operator, has returned to Los Angeles from Roswell, New Mexico, where he recently drilled a couple of exploratory wells. He was a prime developer of the West Newport field.

Sperry-Sun Announces Personnel Changes

Sperry-Sun Well Surveying Company has recently announced the appointment of Harry M. Lowe as California District Manager. Mr. Lowe has been the Bakersfield representative for the past three years and is replacing Mr. Gurasich.

Harry M. Lowe

Steve Gurasich has been transferred from Long Beach to the Philadelphia office where he will engage in development work for the Company. Mr. Gurasich was formerly California Manager for his company for the past two and one-half years.

Mr. Lowe will be replaced in Bakersfield by Mr. Karl C. "Whitey" Clark, who is also well known to the oil fraternity throughout the state. He was formerly manager for the Security Engineering Company, Inc. in the San Joaquin Valley and more recently was connected with Miller & York, drilling contractors.

Mr. A. E. Lemke has been added to the Sperry-Sun Long Beach staff as a Sales and Service Engineer.

Steel Problems?

Call Jorgensen First

IT'S too bad he never heard of Jorgensen—otherwise he would have the key to his steel problem. Whenever you too are barred from action by a steel problem, the key is in your hands if you can just remember to CALL JORGENSEN FIRST! No matter whether you are looking for a particular shape or form (steel, of course) or for a particular kind of steel—carbon, alloy, corrosion-resisting, abrasion-resisting, shock-resisting, hot-work, or any other special purpose steel—your best bet is to *CALL JORGENSEN FIRST.*

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STEEL

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Mr. Lemke was graduated from the University of Southern California with a Mechanical Engineering Degree in 1943. After completing a tour of duty with the U. S. Navy, he was employed as a Development Engineer with The National Supply Company.

Knight Named Sales Mgr. of Franks Mfg. Co.

The appointment of A. H. Knight as sales manager of the Franks Manufacturing Corp. of Tulsa is announced by R. M. White, vice-president in charge of sales.

Knight has spent more than ten years with major supply stores and has had considerable field experience since becoming identified with the petroleum industry in 1929.

He was with the Oil Well Supply Company for eight years and was with the International Derrick and Equipment Company the past year and one half.

In the Navy four years during the war, much of the time overseas, he was discharged with the rank of Lieutenant Commander.

Knight will have his headquarters at the Franks Main Office in Tulsa.

Eugene L. Houdry, an authority on motor fuels, has been named winner of the 1948 Potts Medal of the Franklin Institute at Philadelphia. The award is in consideration of his leadership in the development of catalytic cracking of petroleum, a process which bears his name.

"During the early part of World War II," Franklin Institute commented, "Houdry catalytic cracking units supplied 90 per cent of all aviation gasoline base stock made in this country. Without this development it would have been impossible to make aviation gasoline in the quantities needed by the Air Forces of the United Nations."

T. P. Pike Drilling Co. has contracts to drill another well for J. P. Getty in the Athens field and Union Oil Co.'s Alexander Bell No. 1 at Santa Fe Springs.

Krammes Advanced by Texaco

K. F. Krammes has been promoted to District Geologist in the Bakersfield Area of The Texas Company, it was announced by James T. Wood, Jr., Los Angeles, Division Manager of the Producing Department. Krammes is succeeding L. B. Snedden who has been transferred to Houston, Texas, as Assistant Manager of the geophysical division, producing department.

A native of Long Beach, California, Mr. Krammes was born in 1910. Received his early education in Kern County grammer and high schools, and graduated from California Polytechnic School in 1927. Attended Kern County Junior College at Bakersfield during 1928-1930, and Colorado School of Mines from 1931 to 1932. Entered University of California at Berkeley in 1932 and graduated in 1936 with a BS degree in Geology.

Started his career in the oil business in August 1936 as Junior Geologist for the Union Oil Company of California, and then served with Superior Oil Company as geologist from February 1937 to February 1940. Entered employ of The Texas Company in June 1940 as Assistant Geologist at Bakersfield and advanced to Geologist in May 1943.

Mr. Wm. Walker, President of Calif. Commercial Drlg. Co., has just announced that effective immediately Mr. E. E. Babbitt has severed all connections with his company and that he has disposed of his stock holdings to Mr. Allen G. Lloyd. Mr. Lloyd has been head driller for the company for the past five years and headquarters out of the Taft office.

Running true to form, a recent gathering of Union Oil Co. gaugers at a Pismo Beach conference relaxed by measuring the service records of those in attendance. The youngest was Lloyd E. Adams with 15 years. Charles E. Correll was the senior gauger with 34 years. The entire group averaged exactly 25 years of continuous Union Oil service.

In the Lawndale field, K. L. Kellogg & Sons has been let contract to drill Seaboard Oil Co.'s Comm. No. 5-2.

S. R. Wilson Appointed Secretary of Universal

Stanley R. Wilson has been appointed secretary of Universal Oil Products Company, it is announced by David W. Harris, president of the company.

S. R. Wilson

Mr. Wilson was graduated from the University of Illinois in 1922 with a Bachelor of Science degree in industrial and mechanical engineering, and joined Universal the same year. Later, he studied law at DePaul University, Chicago.

His experience has covered a wide range, both in the United States and in foreign operations. For several years he represented Universal abroad, with headquarters in London.

Later, as administrative assistant in the Chicago office, on contract and financial problems, he continued to handle foreign work. For three years he performed similar duties as administrative assistant in the New York office.

During the war, Mr. Wilson was in charge of all Universal's contract negotiations with the government, and up to the present has been in charge of the contract department of the company.

Torrance Well Starts

Ready to move in is A. S. Johnston Drilling Corp. with its Torrance No. 8 on Sec. 9-4s-14w in the Torrance field. Morton and Dolley are preparing to begin United No. 2 on Sec. 30-4s-13w.

Byron Jackson Transfers Five

The Oil Tool Division of Byron Jackson Co., Los Angeles, California, announces the following new assignments for sales personnel: Robert B. Kirk from sales training to Export Office, Los Angeles; John P. Kirby from Los Angeles Sales to West Texas and New Mexico Sales Territory; Dick T. Clardy from Los Angeles Sales to West Texas and New Mexico Sales Territory; Harry R. Collins, Jr., from Sales Training to Los Angeles Basin Sales Tehritory; and George D. Dwyer from Los Angeles Basin Sales Territory to Wyoming Sales Territory.

Kirby, prior to joining Byron Jackson, was associated with Security Engineering, Halliburton, and Duncan and Reed Roller Bit. Kirk was formerly Assistant Manager, Camera Department of Columbia Pictures Corp. Clardy previously worked for the Sunshine Iron Works, Odessa, Texas, and the Pleasantville Construction Co. of Miami, Florida. Collins was formerly a draftsman for the Standard Oil of California. Kirk, Clardy, Collins and Dwyer all saw extensive service in the U.S. Army during the war years.

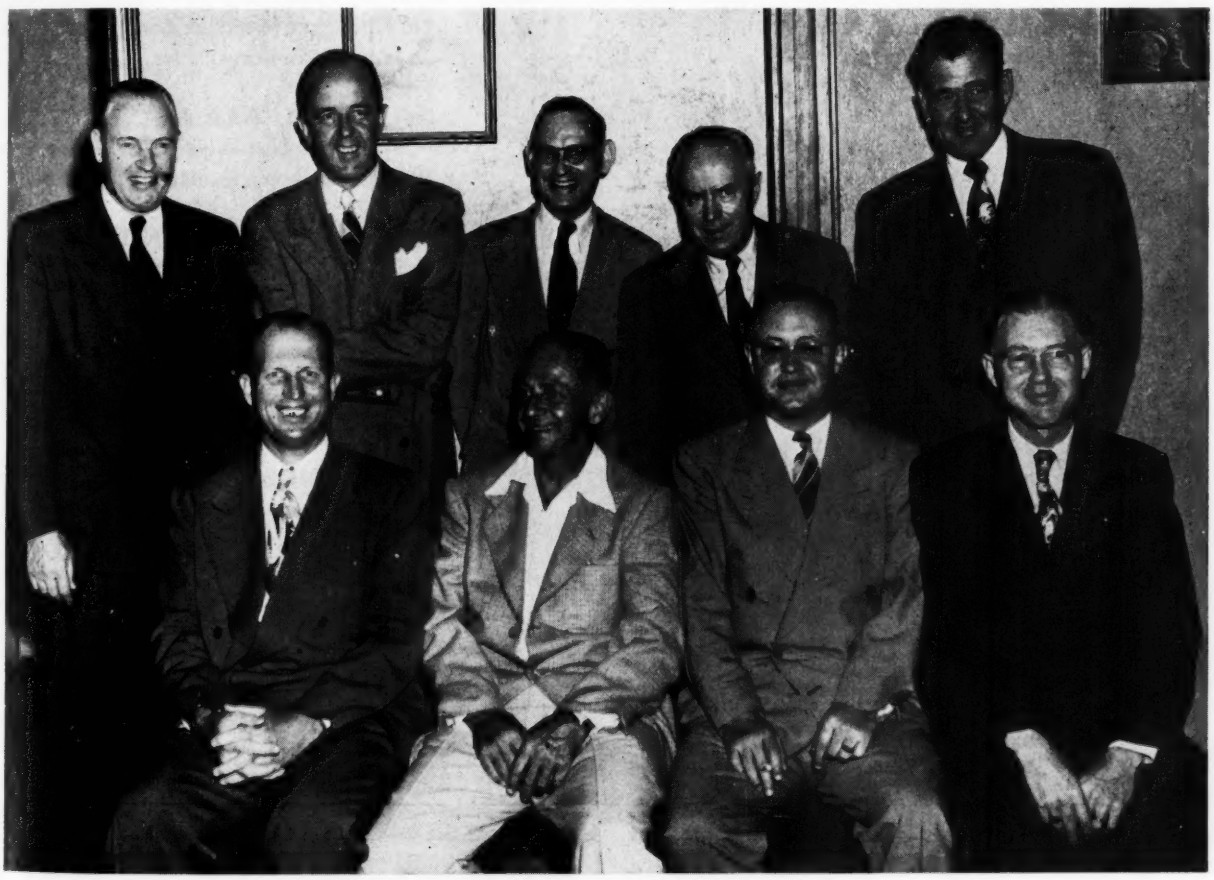
R. B. Kirk J. P. Kirby Dick Clardy H. R. Collins, Jr. G. D. Dwyer

S. C. M. A. Next Meeting Sept. 16th

The next regular meeting of the So. Calif. Meter Assoc. will be held at the Rio Hondo Country Club on September 16th at 6:30 P.M.

Mr. Spink, a well-known authority in the field of measurement engineering with a record of several years of technical work as background for a number of papers published by technical societies as well as the Foxboro Co., will appear on the program.

All members and friends of the association are invited to attend.



C.N.G.A. COMMITTEE CHAIRMEN, 1948-1949

Standing Left to Right: R. S. Tulin, Chairman Gas Report Committee, Gordon Z. Greene, Chairman Entertainment Committee; Don B. Johns, Chairman Technical Committee; H. L. Eggleston, Chairman Publicity Committee; L. V. Cassaday, Chairman Finance and Budget Committee; Seated left to right: Raymond Todd, Chairman Membership Committee; W. A. Kirk, President C.N.G.A. 1948-1949; Randall Maass, Fall Meeting Chairman; J. B. Taylor, Chairman Advisory Committee.

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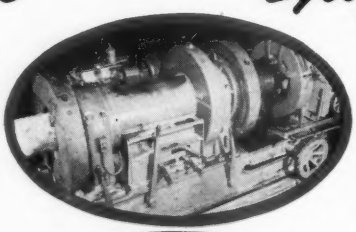
THREADING One of our two Landis Pipe Threaders — service includes threading and coupling any length tubing or casing . . . diameters from 2" to 13⅜".



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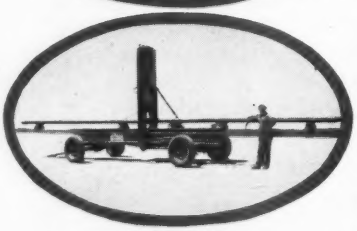
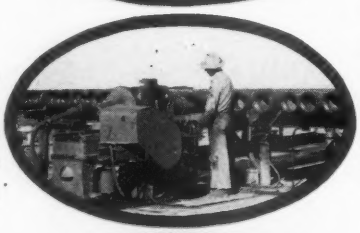


INSPECTION Four operations—collar and threads for serviceability . . . cold-water pressure tests for thin walls and leaks . . . steel drifting for clearance . . . cleaning, doping, wrapping all threads.



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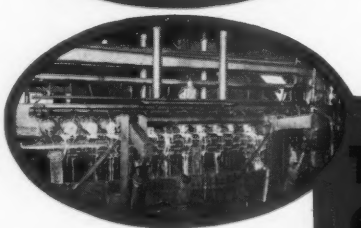

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With Drilling Contractors

A.A.O.D.C. Announce Management Institutes

Plans for an industry-wide series of management institutes for the Oilwell Drilling Industry in 1949 have been announced by the American Association of Oilwell Drilling Contractors and the University of Texas.

Authorized by the Association at a recent directors' meeting, the series will be conducted by the University of Texas. Outstanding authorities on management problems will lead the five institutes which will be held in oil centers in eleven oil producing states.

Principles of Top Management Organization and Control, comprising an analysis of management's function, administrative staff duties, delegation of authority, and analysis of overhead cost factors will be subjects presented in the first institute. Discussions in Institute II, Building a Personnel Organization, will center around selection and hiring of men, personnel turn-over problems, manners of management, and relationship between field and office personnel.

Drilling accidents—a $25,000,000 problem—will be the focal concern of the third institute, Management's Opportunity in Accident Prevention. Nature and causes of accidents, and incentives in reduction of accidents will be emphasized. An analysis of hidden costs in drilling, cost estimates on footage and daywork, and useful time-savers in cost work will be dealt with in an institute on Application of Cost Factors in Contract Drilling. The final institute, Security Programs for Drilling Personnel, will consider insurance plans, retirement plans, profit-sharing trusts, incentive plans, and means to offset periodical lay-offs.

With the exception of Application of Cost Factors, which lasts two days, institutes will be of one day lengths.

The institutes will be practical presentations planned to benefit contractors, drilling superintendents, accountants, drilling engineers, safety engineers and office managers.

A minimum enrollment of fifteen will obtain the series in a drilling center. Maximum enrollment for any institute will be twenty-five, and registration will be on a first-come-first-served basis.

Where district chapters of the Association exist, the program will be under their general sponsorship and supervision. Co-sponsors in each state will be the State Board for Vocational Education of that state and local public schools and junior colleges.

The series will be available at any or all of the following centers, depending on advance registration: Bakersfield, Long Beach, and Los Angeles, California; Denver, Colorado; Wichita and Great Bend, Kansas; Mt. Vernon, Illinois; Evansville, Indiana; Lake Charles and Shreveport, Louisiana; Jackson, Natchez, and Brookhaven, Mississippi; Hobbs, New Mexico; Oklahoma City and Tulsa, Oklahoma; Corpus Christi, Dallas, Fort Worth, Houston, Midland, San Antonio, and Wichita Falls, Texas; and Casper, Wyoming.

The management series are in addition to the educational training which the Association is sponsoring for field personnel. In this program 3500 men have already completed drilling mud control classes and over 200 drillers and tool pushers have taken the first unit of training in accident prevention. An estimated 2000 more will take this training within the next eighteen months.

In addition to these two field programs, classes in operation of drilling engines will be begun in early 1949.

Advance registration for the management institutes will close October 1 so that schedules may be arranged at the Association's annual convention in Houston October 11.

First use in California of the new Knox reinforced concrete casing was made by Santa Fe Drilling Co. with its contract job, Union Oil Co.'s Naranjal No. 42 in the Brea field, Orange County. It was run as surface pipe and set around 400 ft.

In view of the scarcity of steel tubular goods, the concrete pipe is foreseen as offering some casing relief to the oil producing industry.

The concrete casing was a high point of interest at the Petroleum Exposition held recently in Tulsa, Okla.

Inventor of the pipe is Charles E. Knox of Enid, Okla. He spent his youth in the old fields of Pennsylvania and later developed the Knox field in Texas. He was on hand to view the history making run of the pipe at Brea.

Cable Tool Drilling Co. has been formed at Long Beach to engage in the drilling contracting business. The company is specializing in cable tool work and at present has equipment designed to go as far as 2800 ft. Donovan G. Grable is president, John M. Jackson, secretary; Wilbur B. Harrison, treasurer; and John Grier, superintendent. Offices are at 1114 East Hill street in the beach city.

Rocky Mountain Drilling Co. has been assigned contract to drill Comm. No. 7-1 for Seaboard Oil Co. on Sec. 20-3s-14w in the Lawndale field.

Contractor on Amerada Petroleum Corp.'s new job on the Irvine lease at West Newport will be Hoyt Drilling Co. The well will drill on Sec. 7-8s-10w.

California Oil World's Monthly Summary

CALIFORNIA DEVELOPMENT AND PRODUCTION

	JUNE, 1948, DEVELOPMENT				PRODUCTION	
	Active Drilling Wells	Oil Wells Completed	Initial Production B/D	Oil Wells Completed First 6 Months	Daily Average June 1948	Daily Average June 1947
SAN JOAQUIN VALLEY REGION						
Ant Hill					1,045	1,461
Antelope Hills					1,224	1,401
Bellevue					280	309
Belridge—North	1				3,769	6,26
Belridge—South	5	2		19	8,816	6,270
Blackwell's Corner					143	164
Buena Vista	2	1	40	6	45,691	47,092
Canal					1,945	2,022
Coalinga Group						
Eastside	4	11	343	26	18,740	15,545
Oil City					79	88
Coalinga—Nose					52,897	52,751
Coalinga—Northeast				3	9,893	8,361
Pleasant Valley	2				3,366	4,358
Jacalitos	1	2	532	10	6,283	4,565
Westside	3	1	2	21	7,046	6,568
Coles Levee—North	2	1	152	4	16,088	16,686
Coles Levee—South	1			1	3,144	3,333
Cuyama Valley	10	2	1,158	2	528	
Edison	4	4	310	13	11,183	11,516
Elk Hills	4			2	6,277	5,626
Fruitvale	1	1	55	2	6,408	6,647
Greeley					13,929	9,778
Helm					3,346	3,898
Kern Bluff	2	2	155	19	1,064	
Kern Front	3	8	204	29	9,434	8,958
Kern River	4	8	102	151	12,770	10,158
Kettleman North Dome	2	2	803	7	35,070	36,956
Lanare					1,221	1,892
Lost Hills	7	5	347	45	7,885	5,039
McKittrick Group						
Belgian Anticline				1	1,077	202
Cymric	1	2	225	47	17,481	15,008
McKittrick	1			2	2,803	2,749
McKittrick Front				3	2,095	1,521
Salt Creek					6,037	6,911
Sheep Springs					923	347
Temblor Ranch					100	136
Midway-Sunset	4	23	910	60	42,554	43,790
Mt. Poso Group	1	5	140	12	12,937	14,095
Mountain View	1	1	75	5	3,563	5,706
Paloma	5	2	1,043	19	11,601	8,291
Poso Creek Group	1	2	158	7	3,561	3,749
Pyramid Hills					219	259
Race Track Hill				3	2,025	2,280
Raisin City		1	148	5	3,350	2,620
Rio Bravo					12,040	12,025
Riverdale	1				3,016	4,496
Round Mountain Group	1			11	7,711	8,630
Strand					628	1,380
Strand—East					574	509
Tejon Ranch				4	3,128	3,406
Ten Section	1			2	6,975	8,147
Union Avenue					265	249
Wasco					194	289
Wheeler Ridge	1	2	105	4	368	217
Other Fields	6			22	1,224	820
TOTAL—San Joaquin Valley Region	82	88	7,045	567	436,013	425,541
COASTAL REGION						
Santa Maria District						
Barham Ranch (Los Alamos)					10	
Casmalia	1	1	10	5	986	627
Cat Canyon—East					612	468
Cat Canyon—West	4	6	1,461	24	16,326	11,891
Four Deer	1			4	647	124
Gato Ridge				1	3,740	3,531

	JUNE, 1948, DEVELOPMENT				PRODUCTION	
	Active Drilling Wells	Oil Wells Completed	Initial Production B/D	Oil Wells Completed First 6 Months	Daily Average June 1948	Daily Average June 1947
COASTAL REGION—Continued						
Guadalupe	.....	1	100	1	39	.....
Lompoc	1	4	405	17	6,632	4,167
Olivera Canyon	1	.....	.....	.....	785	.....
Orcutt	.....	.....	.....	11	4,612	4,408
Santa Maria Valley	3	3	296	10	20,779	26,840
Zaca Creek	1	2	629	5	1,610	404
Santa Barbara District						
Capitan	.....	.....	.....	.....	2,534	2,978
Elwood	2	.....	.....	3	7,242	7,044
Santa Barbara	.....	.....	.....	.....	93	94
Summerland	.....	.....	.....	.....	1	1
Ventura District						
Montalvo West	1	.....	.....	2	602	132
Padre Canyon	1	2	924	7	6,192	3,307
Rincon	.....	.....	.....	1	3,334	3,628
San Miguelito	3	.....	.....	2	4,689	5,427
Ventura Avenue	11	1	674	13	51,813	48,640
North Santa Clara District						
Del Valle	3	2	205	10	9,335	8,404
Hopper Canyon	.....	.....	.....	.....	209	144
Oak Canyon	.....	.....	.....	1	1,992	1,753
Sespe Canyon Group	1	.....	.....	1	223	223
Temescal	.....	.....	.....	1	549	588
Others	.....	1	175	5	759	285
South Santa Clara Valley District						
Aliso Canyon	2	1	316	5	3,914	3,275
Bardsdale	3	2	145	9	790	438
Newhall-Potrero	6	.....	.....	5	7,277	6,995
Oxnard	.....	.....	.....	.....	1,380	1,568
Shiells Canyon	2	.....	.....	1	941	1,146
South Mountain	5	2	350	12	5,741	5,278
West Mountain	1	1	208	5	1,081	554
Others	6	4	197	10	915	892
Miscellaneous	3	1	275	4	176	220
TOTAL—Coastal Region	62	34	6,370	174	168,560	155,474
LOS ANGELES REGION						
Brea-Olinda	4	3	690	15	14,846	12,152
Coyote—East	.....	1	282	4	5,121	4,656
Coyote—West	5	5	428	17	15,453	14,951
Dominguez	3	.....	.....	2	13,916	14,808
East Los Angeles	.....	.....	.....	1	1,219	1,015
El Segundo	.....	.....	.....	.....	391	458
Huntington Beach	16	17	1,444	126	57,762	49,447
Inglewood	.....	4	727	13	12,122	12,104
Long Beach	1	.....	.....	.....	23,236	23,612
Montebello	.....	.....	.....	.....	6,795	7,556
Newport	4	2	77	28	6,370	6,947
Playa Del Rey	.....	.....	.....	.....	2,003	2,037
Potrero	2	1	257	3	1,124	824
Richfield	1	1	58	3	6,269	6,649
Rosecrans-Athens Group	4	1	51	4	4,599	4,516
Santa Fe Springs	.....	.....	.....	6	15,377	16,621
Seal Beach	2	1	28	9	11,539	11,044
Torrance	1	2	63	4	7,997	7,969
Whittier	1	2	61	.....	974	1,018
Wilmington	10	14	3,318	102	133,719	132,449
Yorba Linda	.....	.....	.....	2	1,036	225
Others	6	.....	.....	7	2,428	1,765
TOTAL—Los Angeles Region	60	54	7,484	356	344,296	332,823
EXPLORATORY						
Outpost Wells	33	.....	.....	.....	.....	.....
Wildcats	17	.....	.....	.....	.....	.....
Gas Wells	.....	.....	.....	16	.....	.....
TOTAL CALIFORNIA	254	176	20,899	1,325*	948,869	913,838

*Includes 212 drilling wells abandoned.

If it's a tough spear job... Call in BOWEN!

WHETHER YOUR FISH is drill pipe, tubing or casing, a Bowen Rotary Releasing Spear gives you faster, safer and more dependable recovery. Years of *successful* fishing experience throughout the world has developed the Bowen Rotary Releasing Spear to provide...

7 OUTSTANDING ADVANTAGES FOR DEPENDABLE SPEARING OPERATIONS...

1. **EXTRA LARGE GRIPPING SURFACE** in the now famous Du-all Slips. These Slips reduce possibility of fish distortion—even under heavy, repeated jarring!
2. **WICKERS FOR BACK OFF AND HOLDING** are in the design of each Slip—besides the regular number of wickers for pulling, there is one vertical wicker for holding and one vertical wicker for backing off!
3. **INSTANT RELEASE AT FRACTIONAL TURN** permits raising or lowering the fishing string to best engagement position—and re-engagement of Spear to fish again requires only a fractional turn!
4. **FREE ROTATION RIGHT OR LEFT** of the fishing string is possible by integral keys on the Spear body which stop the slips in a set or released position, whichever is desired at any given time.
5. **CIRCULATION IS MAINTAINED** by simple installation of a Bowen Pack-Off Attachment on the lower portion of the Bowen Rotary Releasing Spear—after fish is securely engaged, full circulation can be maintained through the fish.
6. **PRE-ENGAGEMENT FISH CONDITIONING** to assure positive internal engagement is easily accomplished by attachment of a Bowen Mill Type Nut—right rotation both mills the fish and drills out sand or corrosion.
7. **POSITIVE CONTACT IN LARGE HOLE OPERATIONS** is assured by the design of Skirts and Guides available for all Bowen Rotary Releasing Spears—good insurance for proper alignment and easy entrance.

Tubing and Drill Pipe Type Bowen Rotary Releasing Spear.

Casing Type Bowen Rotary Releasing Spear.

There is a Bowen Rotary Releasing Spear designed specifically for your fish when it is to be engaged internally. Available from Bowen stores in your territory—sold outright for export only.

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Field Development

PREPARED FROM CALIFORNIA OIL WORLD NEWS SERVICE

Los Angeles Basin

Fairview Try Starts

Standard of California is ready to start work on its Turley No. 1, a wildcat in the Fairview area on Sec. 4-6s-10w, Orange County. The venture will drill about two miles east of the Huntington Beach field and not far from a prior test sponsored by the old Fairview Oil Co. in the same section. This earlier inquisitor drilled to just short of 5600 ft. and logged hard oil sand off bottom.

The Standard banner flies over several other interesting wildcats in the Los Angeles Basin. At Sunset Beach, Lomita Land & Water Co. No. 3-1 on Sec. 19-5s-11w is spot coring at 10,847 ft. L. A. I. No. 4-1 on Sec. 20-2s-14w at Inglewood has reached a depth of 3140 ft. with the drill. Frew No. 1-6 in the Aliso Canyon area is grading ground. Frew No. 1-5 came in from 8678 ft. for 249 barrels daily through a 11/64-in. orifice. Sepulveda No. 13 on Sec. 8-4s-17w at Del Valle is rigging up. Del Amo No. 1 on Sec. 8-4s-13w is a location.

Seal Beach Well Drills

Offshore Seal Beach, Marine Exploration is making hole ahead at 11,556 ft. in State No. 2 test on Sec. 11-5s-12w, Los Angeles County.

Orange County Try Drills On

Drilling has reached a depth of 300 ft. in North Star Mining & Dev. Co.'s North Star-Johnson No. 1 wildcat on Sec. 8-5s-7w in the Silverado Canyon area, Orange County. The well is six miles southeast of the Richfield field and is near the old Santa Clara coal mine on the Modjeska Ranch.

Elsmere Area Drilling Site

Indian Oil Co. is rigging up Wanda Kraft No. 2 test on Sec. 31-4n-15w in the Elsmere area of Los Angeles County. Placerita No. 1 and Sybold Comm. No. 1 and No. 2 are locations. On Sec. 5-3n-15w, W. J. Carter's Carter-Earl No. 1 is down 210 ft. and changing equipment. Nelson-Phillips Oil Co. is grading for Kraft No. 4 on Sec. 31-4n-15w. Farbe Oil Corp.'s Philbert Comm. No. 4-1 is a location on the section. On Sec. 6-3n-15w, Standard is drilling ahead at 1360 ft. with Placerita No. 2. No. 3 and No. 4 are locations on the section.

Castaic Try Ready

Humble Oil & Refining Co., a recent newcomer from Texas, is ready to start its first well in California in the Castaic area. The project is Los Angeles Honor Farm No. 1 on Sec. 1-4n-17w, the scene at one time of a test sponsored by Barnsdall Oil Co. L. R. Wilhite and Claude Kavanaugh are rigging up to resume drilling at 1950 ft. in their Wilhite-Jenkins No. 1 on Sec. 18-5n-16w.

Near Newhall, Spinel Oil Co. has made location for No. K-D-L on Sec. 3-4n-15w. R. W. Sherman's Newhall Comm. No. 3-1 on Sec. 2-3n-16w is drilling below 1600 ft. Perkins No. 1 is a location staked by W. W. Bush on Sec. 10-3n-16w.

Union Pacific's well No. 407 in the Wilmington Field, Shamrock Drilling Co., contractors. Rear row, left to right: R. W. Simpson, driller; M. E. Kersey, derrick; M. O. Martinez, cathead; front row, kneeling, D. B. Hering, lead tong; E. B. Bishop, pipe racker.

CLEAN UP THE "WORKING SURFACE" OF YOUR CASING

Read these facts about the Baker Rotary Casing Scraper

Have you ever tried to run testing tools or a swab, and had the rubber packing unit or the rubber cups so badly cut, torn and mutilated that the run was a failure? The chances are that trouble was caused by burrs from gunshot holes or by the sheath of hardened cement or mud which remains on the inside walls of casing, even after a bit of maximum possible gauge has been used to drill out after a cement job.

Until quite recently there was no fast, simple method of overcoming these difficulties. Now, however, it is truly a waste of time, temper and money to leave any obstructions adhering to or protruding from the "working surface" of your casing. The Baker Rotary Casing Scraper quickly, positively and economically removes *all* obstructions from the inside walls of casing, leaving the surface clean and smooth—ready for *immediate* testing and completion—and in good condition for any remedial or work-over operations *one year or ten years in the future.*

STRONG, SIMPLE CONSTRUCTION

The Baker Rotary Casing Scraper consists of a strong body in which three long, reamer-type, hard-faced blades are vertically mounted. These three blades form an expansible reamer due to the fact that they are pressed outward against the inside walls of the casing by a number of coil springs. This self-equalizing feature insures constant, uniform contact with the walls of the casing, and is one of the secrets of the clean, smooth scraping action. Hard facing is applied in a flat, rectangular recess to form the long cutting edge of each blade, and a worthwhile amount of scraping can be done before the blades are dulled.

Ample circulating areas permit free disposal of cuttings; the streamlined exterior of the body insures ease in running-in; and if by accident the Casing Scraper is run out of the lower end of the casing, there is no difficulty in bringing it back inside for removal from the well.

FACTS ABOUT ITS USE

The ideal time to use a Baker Rotary Casing Scraper is while the rotary rig is still up and the crew is on hand. Install the Casing Scraper just above the bit when going in to drill out the cement shoe. Even when a bit of the maximum possible gauge is used for drilling-out, a thin, hard sheath (or skin) of cement will still remain adhering to the inside walls of the casing. The Baker Rotary Casing Scraper removes not only this hardened sheath of cement, but also scrapes away all mill scale, and smooths out rough areas. The inside of the casing is left clean and smooth, ready for trouble-free, down-hole work immediately thereafter, or at any future time.

If the well is gun perforated, then a second run of the Baker Rotary Casing Scraper will remove any burrs left around the gun-shot holes. The slight additional cost of this second run is negligible when you consider what the clean, smooth casing will mean when any future down-hole work is done.

If at a later time, after the rotary has been removed, obstructions on the inside walls of the casing interfere with operations, the Baker Rotary Casing Scraper still can be employed successfully. By running the Casing Scraper on tubing, and rotating manually with tongs, limited areas may be scraped; while several hundred feet of casing have been scraped by rotation of the tubing with an endless spinning rope, or by means of air tongs.

IT'S EASY TO HAVE THE "WORKING SURFACE" OF YOUR CASING IN PERFECT CONDITION

Baker Rotary Casing Scrapers are furnished on a low-cost rental basis in domestic fields, and *your* crews can run them easily and successfully to scrape the "working surface" of the casing before running casing, tubing, liners, swabs, testing tools, cement retainers, packers or other similar tools. It pays off in savings of time, temper and money.—Why not call the nearest Baker service engineer and start enjoying these benefits in *your* wells?

(Left) With only four springs back of each blade, burrs from gunshot holes are readily removed.

(Below) Notice the "trouble-making" sheath of cement left behind the bit, and how the blades remove it.

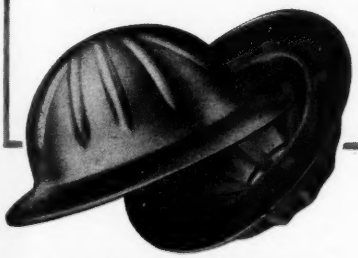
BAKER MODEL "B" ROTARY CASING SCRAPER
Product No. 620-B

BAKER OIL TOOLS, INC. LOS ANGELES • HOUSTON • NEW YORK

With men on the Job

—with safety experts

—it's the "T" Hat 2 to 1



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Puente Test Makes Repairs

Near Puente, east of Los Angeles, Louis H. Didier's Wilson Ranch-Didier No. 1 wildcat is engaged on equipment repairs, with the hole at 2150 ft.

West Newport Test Working

Amerada Petroleum Lamb No. 68-6, a deep test on Sec. 6-6s-10w at West Newport is drilling and coring ahead at 9115 ft. Pacific Western is preparing to start operations in Gisler No. 4 on Sec. 18-8s-10w. Seguro Petroleum's Kraemer-Weirick No. 1 on Sec. 7-6s-10w is making hole at 5020 ft. Bay Shore Oil Co. is rigging up to drill Bay Shore No. 3 near the intersection of Atlanta and Bushard streets. The company is headed by D. D. Dunlap. J. G. Books is superintendent.

Athens Area Adds New Well

Going on the pump is J. P. Getty's Howard Park Fee No. 1 in Sec. 12-3s-14w in the Athens area. Drilled to a total depth of 8939 ft. and plugged to 8665 ft., the well failed to flow on swab trial. Pacfic Western's Howard Park Comm. No. 1 in the section is digging at 6282 ft. Water shut off is being tested in Phillips-Ramsey Oil Corp.'s Athens No. 1 in Sec. 7-3s-13w. Bottom is 8725 ft., with casing cemented at 8350 ft. Meeker & Garner has location staked for Deist No. 86-1 in Sec. 12-3s-14w. Foundation is in for Southern California Petroleum's Howard Townsite No. 86-1 in Sec. 12-3s-14w.

Olive Try Prospects

Prospecting ahead at 4520 ft., British-American Oil Producing Co.'s Fluor No. 1 in the Olive area has yet to report showings. Location falls in Sec. 24-4s-10w, Orange County. At Alondra Park in Los Angeles County, Bodger No. 5 in Sec. 22-3s-14w is exploring ahead at 8375 ft.

Chino Test Awaits Pipe

Further operations with Chino Hills Oil Co.'s Chino Hills No. Kb-4 on Sec. 33-2s-8w at Chino in San Bernardino County will await needed casing. The well is bottomed at 2056 ft. Mercury Oil's No. 1 on Sec. 32-2s-8w is shut in at 1273 ft.

RUFNEX

RENFRO

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Whittier Test Idle

Idle at 8521 ft. is still the present operational stage of Livingston Drilling and Dev. Co.'s Dewey No. 1 at East Whittier on Sec. 1-3s-11w. Union Oil and Fullerton Oil's Mineral Springs No. 3 on Sec. 25-2s-11w near Whittier is grading.

East Coyote Well Starts

Severns Drilling Co. has foundation in for No. C-9 in Sec. 13-3s-10w in the East Coyote field. Smith No. 1, sponsored by Imperial Oil Co. in Sec. 17-3s-9w, is drilling at 1755 ft.

Salt Lake Well Idle

In the old Salt Lake field at West Los Angeles, Beverly Oil Co.'s Beverly Fee No. 4 in Sec. 20-1s-14w is idle at a plugged back depth of 1900 ft. Original bottom was 6949 ft.

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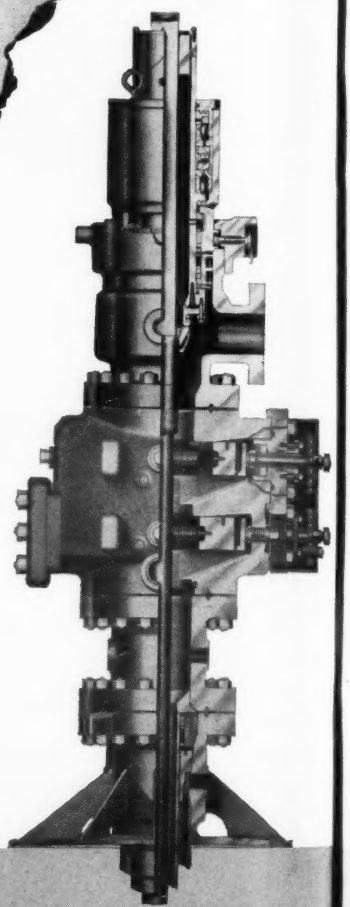

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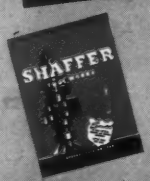

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San Joaquin Valley

Cuyama Valley Testing Widens

Stepping out a considerable distance from production, Richfield Oil Corp. is rigging up to start the drill in F. K. Perkins No. 1 on Sec. 27-10n-26w at Cuyama Valley. It is in the foothills about 11 miles east of the Richfield productive sector and the well probably will make a thorough and complete trial of oil possibilities at that location. Other developments in the area include the staking by Richfield of locations for Anderson No. 75-25 and Anderson No. 87-25 on Sec. 25-11n-28w, and Anderson No. 17-30, Anderson No. 27-30 and Anderson No. 38-20 on Sec. 30-11n-27w.

Richfield has abandoned Cebrian Estate No. 1 on Sec. 23-11n-28w, Conklin No. 1 on Sec. 11-10n-28w, Victoria Wood No. 1 on Sec. 9-10n-28w and Quality No. 73-31 on Sec. 31-11n-27w. Respective depths are 3860, 1570, 3925 and 3340 ft. Production failure of the Quality project may delimit the area to the southeast. However, more drilling is necessary before the true worth of Cuyama can be gauged accurately. Richfield at this writing has developed a daily production of approximately 3000 barrels from 7 wells.

About 12 miles from the Richfield producers, George Noonan and Gene Reid Exploration have abandoned Wallace No. 1 on Sec. 6-9n-25w. Prospecting was carried to around 4000 ft. Peak Oil Tool Service Co., Inc., meantime, is drilling at 1642 ft. in Stone No. 1 on Sec. 16-11n-28w. Elmer C. von Glahn and George Leingang are rigging Cole No. 1 on Sec. 16-10n-27w.

The Bureau of Land Management, on recommendation of the Oil and Gas Leasing Division of the U. S. Geological Survey, is planning to resurvey the valley within 60 days. The Government is understood to have found errors in original surveys made of the old Cuyama Rancho grant when working on a base map of the oil discovery area.

Richfield Oil Corp.'s newly discovered production area in the Cuyama Valley has been classified officially as the Russell Ranch oil field by the State Division of Oil and Gas.

The productive area lying north of the Cuyama River in San Luis Obispo County will be designated as the White Rock area of the field. The producing sector south of the river in Santa Barbara County will be known as the Russell area of the field.

Interesting to note is the fact that Hub Russell is the lessor of properties on which production so far has been found. He is the fee owner of most all ground within the confines of the 40,000-acre Cuyama Rancho.

Tejon Ranch Test Starts

Two miles south of the Tejon Hills Oil Co.'s shallow discovery, Richfield Oil has staked location for Tejon No. B-31-22 on Sec. 22-11n-18w on the Tejon Ranch. Location falls northeast of the Tejon No. B-1, which was abandoned in granite around 1600 ft. At Wheeler Ridge, KCL-Coal Canyon No. 63-29 has been completed at a redrilled depth of 1670 ft., pumping to sump 12 barrels daily, cutting 92 per cent. The well is on Sec. 29-11n-20w, where the company is grading for Coal Canyon No. 83-29. Gordon No. 13-28, a recent completion on Sec. 28-11n-20w, is making 43 barrels daily, cutting 65 per cent. Bottom is 1360 ft.

Ciervo Area New Oil Scene

Stepping out to the west, Texas Co. is drilling at 1075 ft. its Ashurst NCT-One No. 1 on Sec. 27-16s-11e, a follow-up to Nicholas No. 1 discovery well on the section in the Ciervo area, San Benito County. The discovery, which went to a total depth of 1252 ft., at last reports was yielding 14 barrels a day from plugged bottom at 1185 ft. The company's Parish One No. 1 is a location on Sec. 33-16s-12e. Ciervo is about 24 miles northwest of Coalinga.

Ground in all parts of San Benito County is being studied by large operating organizations for possible

Roustabout crew installing steel fences around mud pits in the Athens Field drilling operations. Rear row, left to right: M. E. Bennett, gang pusher; E. P. Carroll, truck driver; S. Dykstra, roustabout; Bill Mulcahy, roustabout; front row, left to right: Chas. Rickart, roustabout; Paul Simpson, roustabout. This installation is on Shell Oil Co.'s Howard Comm. No. 4-1.

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prospect drilling. A center of considerable interest is the Live Oak area, 23 miles north of San Ardo. Leasing in Monterey County is reported heavy as far north as Parkfield.

On the Packwood Anticline in San Luis Obispo County, Texaco is starting Sullivan No. 1 wildcat on Sec. 1-27s-17e. Universal No. 1 in the Pottenger area on Sec. 19-30s-21e has been abandoned at 4674 ft.

Williams Try Drills

British-American Oil Producing, seeking new oil in the Williams area on Sec. 28-27s-19e, is drilling there with USL No. 33-28 at 1009 ft.

In association with the Capital Company, British-American is drilling a brace of tests at Arvin and a well at Race Track Hill. Arvin A No. 36-26 and Hansen No. 57A-26 on Sec. 26-31s-29e at Arvin are making hole ahead at 6605 and 6790 ft., respectively. Portals-Berry No. 96-A-4 on Sec. 4-30s-29e in the Race Track Hill area is digging at 2300 ft. Portals-Grouson No. 16-A-3 is a foundation on Sec. 3-30s-29e. British-American and Western Gulf's Beer No. 11-22 on Sec. 22-26s-19e in the Blackwells Corner area is coring on down at 7146 ft. On Sec. 6-26s-18e, Independent Exploration in company with Superior Oil is rigging up Mabury No. 4 test.

Sites Test Rigging Up

Universal Consolidated Oil Co. is rigging up to deepen from 1408 ft. its Sites No. 1 on Sec. 19-17n-4w in the Sites area, Colusa County. The company some months ago acquired oil and gas leases in the area approximating 4500 acres. The Sites project was carried to present depth by the former operator, Pacific National Petroleum Corp. Gas sand was topped at 1358 ft. and top of water sand at 1390 ft. On production trial, the well flowed salt water.

Bacon Hills Try Fishing

Drill pipe fish continues to perplex Seaboard Oil's No. 58-21 on Sec. 21-28s-20e in the Bacon Hills area of Kern County. The hole is bottomed at 9467 ft., with top of fish at 4929 ft.

Comanche Point Venture Complete

Tejon Hills Oil Co., which in recent weeks gave the petroleum industry a fresh surprise by opening very shallow production at Comanche Point, is about to complete another well there. It is Tejon Hills No. 5 on Sec. 10-11n-18w. Total depth is 420 ft., with casing set at 385 ft. The No. 4 on the section has been abandoned at 473 ft. Proper evaluation of the structure probably calls for the drilling of several more wells. C.C.M.O. Co.'s Tejon Ranch No. 1 on Sec. 23-32s-29e is standing with casing cemented at 465 ft. The hole is bottomed at 470 ft.

Rosedale Try Drills

Continental Oil Co.'s interesting explorer at Rosedale on Sec. 11-29s-26e in Kern County is drilling steadily ahead at 8024 ft. The project is known as KCL No. P-1.

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Ant Hill Area New Drill Scene

J. A. Smith has staked locations for three test holes between the Ant Hill and Edison field. They are S.P. No. 1, No. 2 and No. 3 on Sec. 31-29s-30e. On Sec. 2-29s-29e, D. D. Feldman has abandoned his Feldman M. & T. No. 1 near the Ant Hill field. This try went to a total depth of 3060 ft. and found both the Vedder and Walker zones wet.

In the Edison area, First National Finance Corp.'s DeMille-First National-Jeppi No. 1 test on Sec. 17-30s-29e is rigged up. Actual drilling is understood awaiting purchase of necessary casing. J. Paul Getty's Alexis No. 1 on the same section is swabbing after the well came in for an estimated 100 barrels daily and died. Total depth is 3450 ft. and plugged back bottom 3425 ft. The 7-in. is set at 3310 ft., with perforations at the intervals of 3310-3340 and 3385-3425 ft. East of the Edison field, Morton & Sons' Tejon Ranch No. 15-1 on Sec. 15-30s-30e is standing idle at 6090 ft. Seaboard Oil Co. is drilling at 3960 ft. with Porter No. 1 wildcat on Sec. 28-30s-29e.

McKittrick Try Working

Formation tester is running in General Petroleum Corp.'s Ninkovich No. 62-9 wildcat in the McKittrick area on Sec. 9-30s-21e. Drilled to a total depth of 11,283 ft., the hole was subsequently plugged back to 10,186 ft. Casing is set at 10,087 ft., with four holes at 10,049 ft. Union Oil Co.'s R. & K. No. 1 on Sec. 34-30s-21e is drilling ahead at 6933 ft. On Sec. 29-30s-22e, Pacific Western has staked Lucas No. 21 and No. 22.

McKittrick Well Tests

Signal Oil & Gas Co. is perforating and testing in Signal-Pike No. 1 wildcat on Sec. 10-30s-22e near McKittrick, with reports indicating that some zones have swabbed dry and other zones apparently wet. The company is rigging up Signal-Honolulu-Twisselman No. 1 at Shale Hills on Sec. 22-27s-18e.

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Petroleum Production Pioneers Set September 11th for Fall Meeting

Ventura has been chosen as the site for the Fall get-together and barbecue of Petroleum Production Pioneers according to an announcement by J. E. Gosline, President. The date is Saturday, September 11th, the place, Camp Comfort, and the starting time, 3 p.m.

Following a social hour during which the old timers get together and discuss the "good old days," dinner will be served at five o'clock. Prominent among those in charge of arrangements for the event are Swede Larson, Ox Morgan, George Trembley, Glenn Merkley, and Dick Sneddon.

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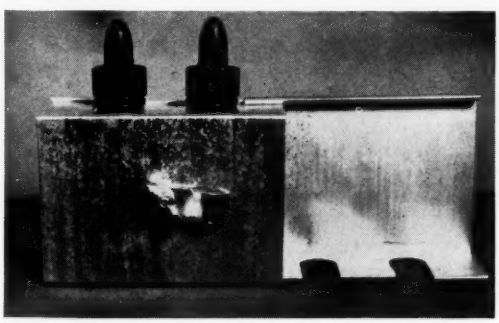

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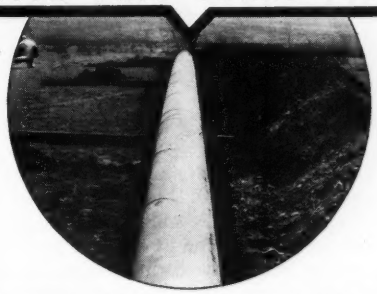

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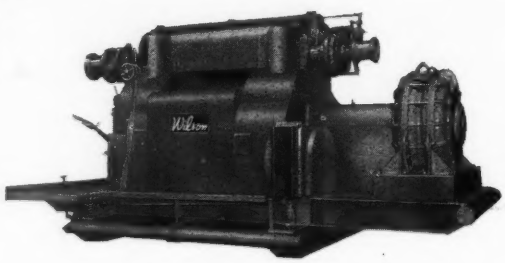

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Goleta Scores New Discovery

Following the drilling of five dry holes and the expenditure of $1,500,000, Honolulu Oil, Signal Oil & Gas and Macco Construction Co. have made an interesting new oil discovery at Coal Oil Point, west of Santa Barbara, near Goleta.

The well, on Sec. 19-4n-28w, started off at 10,054 ft. flowing to sump at the rate of 95 barrels of 28.4 gravity oil daily, cutting 8 per cent mud. At last reports, yield was 42 barrels a day and cutting 20 per cent. Four-inch casing is set on bottom, with the interval perforated from 10,020 to 10,047 ft. The well was whipstocked from a cliff location close to the shore line. The new producer was called State No. 309-2.

Summerland Test Rigging

Standard of California is rigging up Williams No. 1 on Sec. 16-4n-26w at Summerland in Santa Barbara County. The company has under lease 320 acres of that portion of the old Ortega Rancho now owned by H. L. Williams. Community leases are understood to have been signed for a substantial portion of the townsite, which spreads over some 90 acres. A community lease also has been signed for drilling on 100 acres of residential property beyond townsite boundaries. Summerland's heyday was shortly after the turn of the century, when more than half-a-hundred wells were producing. Currently, there are only a couple on production.

Los Alamos Test Deeper

On the Tognazzi lease in the Los Alamos area, Amerada Petroleum is drilling below 4150 ft. in its No. 1 test on Sec. 14-8n-33w.

San Ardo Active Area

In the lively San Ardo area, Jergins Oil and North American are testing water shut off in Ferrino No. 62-11 on Sec. 11-23s-10e, Monterey County. Total depth is 1960 ft., with casing set on bottom and top oil sand at 1953 ft. No. 73-11 on the section is awaiting storage. Plugged depth is 2150 ft. No. 76-11 is pumping to sump an unestimated amount of crude oil from plugged depth of 2297 ft. Orradre No. 34-12, a new producer, currently pumps 60 barrels from a finishing depth of 2140 ft.

Texas Company has added Biaggi No. 2 on Sec. 12-22s-9e from 1159 ft. for an ungauged yield on the pump. Aurignac No. 3 on Sec. 31-22s-10e is drilling below 4500 ft. Labarere No. 1 on Sec. 25-23s-10e is digging at 3562 ft.

Approximately 11 miles southeast of the Jergins-North American Orradre wells, Barnsdall Oil Co. has staked R. & W. No. 1 on Sec. 21-23s-12e.

Arroyo Grande Wildcat Begins

Macoil Corp. has staked Guidetti No. 1 on Sec. 27-31s-12e near the

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Arroyo Grande field, San Luis Obispo County. Drill site is west of the old Indian Dome Oil Co. venture, which found nothing of commercial interest to 3376 ft. Another hole drilled in the general area was A. T. Jergins Trust's Indian Knob No. 1.

Goleta Try Pumps Water

Redrilled and completed at 2567 ft., Jasper Petroleum Co.'s Thos. B. Bishop Co. No. 1 wildcat on Sec. 7-4n-28w at Goleta apparently pumped fresh water. Original depth is 3241 ft.

Simi Try Drilling

Drilling in gray shale at 4512 ft. is the last report from M. H. Marr's Ranch No. 1 wildcat on Sec. 30-3n-17w at Simi.

Hopper Canyon Wildcat Drills

In the Hopper Canyon area of Ventura County, Richards & Rowan have started the drill in Cosby No. 1 test on Sec. 11-4n-19w and have reached a depth of 396 ft.

Sulphur Mountain Wildcat Starting

Richfield Oil Corp. has staked A. E. McCallister No. 1 test in the Sulphur Mountain area in Sec. 23-4n-22w, Ventura County. The company's W. A. Freeman No. 1 on Sec. 21-4n-22w is swabbing for production from a plugged depth of 2228 ft. At Timber Canyon, E. P. Clark No. 1 try on Sec. 13-4n-21w is drilling ahead at 521 ft.

San Marcos Try Coring

In upper Santa Ynez Valley in Horse Canyon, Fred M. Manning & Associates is coring ahead at 2335 ft. with Lazy R G No. 1 wildcat on Sec. 24-6n-29w. Location is four miles off San Marcos Pass highway. On Sec. 1-5n-20w in the Santa Ynez area, Ohio Oil's Unit No. 1 test is grading ground.

Olivera Canyon Project Completed

Pacific Western has completed its first well at Olivera Canyon. It is Williams Holdings No. 1 on Sec. 18-9n-32w, which currently puts out 141 barrels of 14 gravity oil daily, cutting 40 per cent. Total depth is 5837 ft. Union Oil's McCroskey No. 4 on Sec. 29-9n-32w is drilling ahead at 5075 ft., after successfully recovering fish.

Kirby Hills Try Fnished

Shell Oil is running tubing to complete its Lambie No. 4 on Sec. 30-4n-1e at Kirby Hills in Solano County. The hole is bottomed at 6380 ft. Casing is set at 6350 ft. The company's James No. 1 on Sec. 1-19w-5w in the Willows area of Glenn County is drilling at 1209 ft. Glide No. 2 on Sec. 14-7n-3e at Willow Point, Yolo County, is fishing drill pipe. Present depth of the hole is 6958 ft. Top of fish is placed at 4629 ft.

Moorpark Try Drills

Engineers Syndicate, Ltd., a Hollywood concern, is drilling in basalt at 360 ft. in Strathearn-Coleman on Sec. 12-2n-19w in the Moorpark area, Ventura County. The derrick site is near Tierra Rejada road.

Point Arguello Venture Drills

Southwest of Lompoc on the Robert Sudden Ranch in the Point Arguello area, Universal Consolidated is drilling at 455 ft. with No. 4 test on Sec. 25-6n-36w. Circulation difficulties are reported. The company's recent abandonment of Sudden No. 3 was the third duster to be drilled in the area. The first two wells there were drilled by Independent Exploration Co.

Cat Canyon Test Grades

Grading is under way for Abbot Jenks Oil Co.'s Dawfield No. 1 try on Sec. 32-9n-32w at Cat Canyon in Santa Barbara County.

Solano County Gas Try Cores

Honolulu Oil Corp. is coring at 1409 ft. with Peterson No. 1 gas test on Sec. 25-5n-1w in the Denverton area in Solano County. On formation try of the interval from 1380-1391 ft., the well flowed at the rate of 3,300,000 cubic ft. of gas a day. Three gallons of water were recovered.

Keenan Pipe Opens Bakersfield Branch

As a result of a tremendous increase in volume of business in the Bakersfield area and to serve its oil, industrial, plumbing and heating customers in this section to better advantage, Keenan Pipe & Supply Co., pioneer distributor of pipe, valves, fittings, tools and industrial supplies, has just completed the erection of a large plant and warehouse at 633 Williams Street, Bakersfield. The new branch, which was formally opened on July 17th, has more than 40,000 square feet of space available in covered and yard storage, and will be one of the best sources of valves, fixtures, welding fittings, plumbing supplies, and tools in the Bakersfield area.

Thomas Keefe, widely known in Bakersfield and Los Angeles, has been named manager of the new branch. Mr. Keefe brings to his new post a broad background of experience, having been associated with the Keenan organization in various capacities for over fifteen years. Lloyd Sayles has been transferred from the Keenan Los Angeles plant to act as outside salesman for the Bakersfield office. Previous to joining Keenan, he was formerly sales manager for a plumbing supply house in Lansing, Michigan.

Complete stocks of a wide range of plumbing and industrial supplies will be maintained at the new plant and specialized engineering advice is available if desired. American Radiator and Standard Sanitary Heating equipment; National Tube and Kaiser Pipe; Walworth Lubricated plug, iron body, cast steel and brass valves; Taylor Welding Fittings; Watson Stillman Forged Steel Fittings; Edward Forged Steel Valves; Dresser Couplings; Skinner Pipe Clamps; Wheeling A.P.I. Line Pipe Couplings; Toledo, Ridgid, Reed, Black & Decker, Plomb, William, and Mephisto Tools; Alabama Pipe; Soil Pipes and Fittings; Phelps Dodge Copper Tube; and Red Brass Pipe are some of the items maintained in stock.

Headquarters for Keenan have been located at 2112 East 27th Street, Los Angeles for the past 15 years. In addition to the new Bakersfield branch, the firm has a branch at First and Broadway in Tucson, Arizona.

Mud Circulation Pumps

In California it has been common practice in recent years to use two 7inch to 7¾-inch by 20-inch pumps in parallel into 4½-inch drill pipe in 11-inch holes. The fluid volume approximates 1200 gallons per minute, and the ascending velocity of the fluid is close to 300 feet per minute.

The New Bakersfield Plant.

New Bulletin by National

Drilling Rig. Bulletin No. 350, 20 pages, describes and illustrates the Ideal Type 100 Consolidated Rig, which is designed for a maximum of 750 hp. input (4400 ft. lb. torque) and for drilling to a nominal depth of 10,000 ft. with 4½-in. drill pipe or 12,000 ft. with 3½-in. drill pipe. Each unit of the rig is separately illustrated and described, including main frame, transmission, drum shaft, sand reel, catshaft, brakes, featured air-operated friction clutches, controls, drive groups, and other members. Engineering, operating and lubricating specifications are included, as well as a shaft speed diagram and dimensional drawing. Copies are available from The National Supply Company, Box 899A, Toledo, Ohio.

Derricks for Deep Drilling

The A. P. I. Derrick Manufacturer's Sub-Committee has developed tentative standards for a new series of taller and wider derricks for deeper drilling. Two sizes are being considered, the first, 182 feet with 7′-6″ nominal top opening and 36′-0″ floor width, the second, 140 feet with 7′-6″ nominal top opening and 30′-0″ floor width. These heights are 4 feet more than the present 178 feet and 136 feet to allow more head room for handling pipe with the largest traveling block, hook, and elevator links likely to be made for deep drilling. This extra four feet would be provided in the starting legs with the first girt raised from its present 10 feet position to 14 feet. All the girts would be held to their present standard 7′-0″ spacing.

Sonoma County Testing Ground

Near Petaluma in Sonoma County, Precision Drilling Co. has reached a depth of 1780 ft. in Tunzi No. 1 wildcat on Sec. 29-5n-6w. At Santa Rosa, L. W. Lenhart is drilling at a similar level.

THIS LAUGH

OFF!!

"Do you act toward your wife as you did before you married her?"

"Exactly. I remember how I used to act when I first fell in love. I used to stand in front and look at her house, almost afraid to go in. Now I do the same thing some nights."

Friend (to policeman, who had formerly been a salesman): How do you like the new job?

Policeman: Swell. The pay is good, the hours O.K., and the customer is always wrong.

Slow waiter: This coffee is imported from Brazil.

Tired customer: Well, whatta yuh know? It's still warm.

Plumber: I came to fix the old tub in the kitchen.

Son: Ma, here's the doctor to see the cook.

After Jane had jilted her shipping clerk lover in favor of the son of the local banker, she wrote to her ex-sweetheart:

"Dear Henry: As you are aware I am to be married to Arnold Adams next month. I shall, therefore, appreciate it if you will burn all the little notes that I wrote you expressing my feeling for you."

"Dear Jane," came the prompt reply, "I shall certainly comply with your request at once. And, incidentally, as your fiance holds a few notes of mine, please ask him to return the favor by burning these for me."

A man met a friend on the street, all bandaged up and walking on crutches.

"What in the world happened to you?" inquired the friend.

"Well, I had a date last night with my girl friend. We were dancing when her father came in. He is deaf and couldn't hear the music."

A tramp knocked on the door of the inn known as "George and the Dragon." The landlady opened the door and the tramp asked, "Could you spare a hungry man a bite to eat?"

"No!" replied the landlady, slamming the door in his face.

A few minutes later the tramp knocked again. The landlady came up to the door again. This time the tramp asked, "Could I have a few words with George?"

Social reformer: "The last time I met you, you made me happy because you were sober. Today I am unhappy because you are drunk."

Village reprobate: "Yes, today's my turn to be happy."

"Did you say your husband was fond of those clinging gowns?"

"Yep. He likes for one to cling to me for about five years."

Ensign (pointing to large plaque on deck): That marks the spot where our brave captain fell.

Girl sightseer: I can see why. I darn near slipped on it myself.

At a military wedding recently some wag hung a sign on the back of the newly married couple's car: "Result of Careless Talk."

With Violet cuddling in his arms
He drove a car—poor silly.
Where he once held his Violet
Now he holds a lily.

Mistress: Marie, when you wait on my guests at the table tonight, please don't spill anything.

Maid: Don't you worry, ma'am; I never talk much.

She: I'm looking forward to my 24th birthday.

He: Aren't you facing in the wrong direction?

Man (after collision): "I saw your hand out, Miss, but I couldn't tell what you were signalling."

Young lady: "Oh, I wasn't signalling—I was drying my nail polish."

Damn-We're Getting Old!

..When you devote all your time to a job—say, for instance building pumping units — time really flies. Hardly seems like more than yesterday since we set up shop and began making pumping equipment back in 1919.

..But we wouldn't have it any other way. In these last 29 years we've worked hard and our customers seem to think it was time well spent. Lots of them tell us they've never had a unit that lifted oil for less. Of course this makes us happy and helps compensate for that funny feeling you get when you realize you're 29 years older—damn.

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